

WhatTheyTh!nk

# Printing Outlook

# 2024

A survey of printing and communications executives about their business outlook and the industry's print and service offerings.

## **Printing Outlook 2024**

*WhatTheyThink's Overview of the Current Economic State of the Industry*

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## INTRODUCTION: PANIC! AT THE DISCO

One of our Print Business Outlook Survey respondents this year wrote:

“Coming off of an incredible year in 2022, 2023 was a reflection of the timidity of the economy and clients that needs to regain fiscal responsibility after a wild spending spree post-pandemic. We certainly felt a slow start to 2023 but business has slowly regained strength as we head into 2024 and we expect that to continue.”

Another wrote:

“2023 was a strange year. Very inconsistent month to month and year to year! Trends meant virtually nothing. The market is very odd.”

Last year’s Printing Outlook report had the theme “back in black,” as 2022 saw printers and print customers making up for the two lost pandemic years, with demand for print resurging. In some ways, it was a little unreasonable to expect that 2023 would keep that momentum growing, and mid-way through the year, printers we spoke with already had been seeing volumes decline compared to 2022. Dr. Joe Webb is still in retirement, so we’ll put a positive spin on it: 2023 was a period of normalizing. Not as bleak as 2020 and 2021, not as great as 2022, but more in line with what a “normal” year looks like.

In some ways.

### A Fever You Can’t Sweat Out

It’s hard to say what a “normal” year for the industry looks like, since it’s been a long time—decades, one could argue—since anyone could sit back and expect business to remain normal. The early 2000s saw the true impact of the advent of the Internet on the demand for print, which, when things started to settle down, was followed by the Great Recession. After that, we had the impact of mobile technology and social media, which furthered the trend away from print as the dominant medium. And as we all figured out how to adapt—largely by expanding into new capabilities such as display graphics—we had the pandemic and its aftermath. For the past 23 years, it’s just been one thing after another.

### Pretty. Odd.

Even given all that, our respondent above is not wrong when he or she said that 2023 was a “strange year,” and some of it was macroeconomic, with some of the effects of the pandemic still lingering, most notably inflation. Perhaps there is no better example of Dr. Joe’s exhortation to always adjust for inflation. Consumables and other costs (especially paper) remained high, wages had to keep going up to attract employees, and other costs—postage/shipping, utilities, rent (if a company doesn’t own its own location) and virtually everything else—went up dramatically post-pandemic. We started 2023 with inflation over 7%; we ended with it down to 3.1%. But all this means is that things are getting more expensive more slowly, not necessarily that prices are coming down. (Except for some things, like gas, which was over \$4 a gallon a year or so ago and, when I got gas last week, was slightly above \$3 a gallon.) Anyway, the upshot of all this is that, as our Business Conditions data this year shows, even if jobs and revenues increase, there is still a hit to profits. And, with interest rates being high (as the Fed raised them to try to combat inflation), the financing costs of equipment were high, which is why 2023 was a lousy year for capital investment. (We’ll talk more about this in Section 2.) So unless a company *really* needed to add capacity or new capabilities, they probably deferred any investment until rates come down, which hopefully they will this year.

As 2024 begins, as we always say, some challenges are easing, some are persisting, and some new ones are percolating.

## Vices & Virtues

So welcome to our *Printing Outlook 2024*. Preparing this report was a little more dispiriting than last year's, but certainly nowhere as surreal as *Printing Outlook 2021* and *Printing Outlook 2022*. Overall, the industry didn't have a terrible year, even if it wasn't as good as the previous year, and at least we were able to jettison our "revenues decreased by 25% or more" survey item. This time around, the emphasis is on productivity—specifically, how to improve it and how to cope with employee shortages. Tellingly, in the Hiring Plans section, production staff top the list of whom shops are looking for, compared to last year when it was mostly sales staff.

We also note that a lot of people (not just in the printing industry) seemed to think the economy was a complete shambles last year, with a recession imminent. Actually, virtually all economic indicators were positive for most of the year—and even the one dark spot, inflation, was tamed by the autumn.<sup>1</sup> Sure, not everyone has the same experiences, and not every industry benefits from the rising tide of a growing economy, but we've been seeing since the late 1990s that no one ever thinks the economy is doing well, even when it is. Interestingly, a *New York Times* poll<sup>2</sup> conducted last summer found that 43% of respondents found their own economic circumstances "excellent" or "good"—but only 10% said that the economy as a whole was "excellent" or "good." And, yes, again, not everyone benefits from a good economy, for any of a whole host of reasons, but such bearishness is bad for business if customers think disaster is around the corner and spending on things like print. It can become a self-fulfilling prophecy.

Anyway, we'll dig into all that.

## How This Report Is Organized

Section 1 presents our Fall 2023 survey data about current (2023) and expected (2024) business conditions, specifically how print businesses fared *vis-à-vis* revenues, number of orders, and profits.

Section 2 presents our survey data on print businesses' top challenges, opportunities, and planned investments.

Section 3 looks at what new technology or product areas print businesses are looking to expand into. High-speed production inkjet? Wide-format printing? Textiles? Packaging? What's hot this year compared to 2019, when we last asked this question?

Section 4 presents the results of our survey question about print businesses' hiring plans. Do they have any and, if so, for which positions? We also asked about where they are looking for employees.

Section 5 looks at two hot topics in 2023: automation and so-called "artificial intelligence." Have print businesses implemented some kind of workflow automation? If so, what do they think of as "workflow automation"? We also asked an open-ended question about their challenges in implementing automation. We also asked if print businesses were using AI (or, more appropriately, "machine learning") for any of their business or production tasks. We had added the AI question not entirely unfacetiously, but we were surprised by the extent to which print businesses were using it in some fashion.

Section 6 rounds up the write-in responses to our open-ended question about how print businesses fared in 2023.

Section 7 rounds up a variety of printing industry data—establishments, shipments, profits, employment, and so on. In addition to commercial print, we also include data on publishers, sign and display advertising shops, and several categories of paper and packaging converters.

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<sup>1</sup> Real estate was another trouble spot and is perhaps the one challenge that persists.

<sup>2</sup> Ben Casselman and Lydia DePillis, "Voters See a Bad Economy, Even if They're Doing OK," *New York Times*, July 15, 2022, updated July 17, 2023, <https://www.nytimes.com/2022/07/15/business/economy/inflation-economy-polling.html>.

Section 8 provides the latest general macroeconomic data. These data are important to put industry data into the proper macroeconomic context.<sup>3</sup>

Section 9 offers what we see as the hot, cold, and lukewarm trends for 2024, as well as WhatTheyThink's economic and printing industry forecast.

The demographics of the respondents who completed our survey are included in Appendix A. The survey methodology and questionnaire are provided in Appendix B. Our entertaining explanation of survivor bias is presented in Appendix C.

## Nota Bummer

A caveat about this year's data. We had an atrocious response to our survey this year, by far the worst we've ever had. Despite leaving the questionnaire up longer than we usually do, cajoling people via email, LinkedIn, and other social media, and every other option short of subpoenas, many previous respondents took a pass this year. So at 155 usable responses for most questions, this is far below what we prefer, and we're not sure leaving it up for another few weeks after the holidays would have helped. The data is certainly usable (I've had fewer responses for research reports I've done in other industries) although some of the employee-size cross-tabulations are a little squishy, especially on "If yes..." follow-up questions. I've called out in the commentary where I think the low response rate affected the resulting data. We have some back-up plans for next year, so hopefully this will be a one-time problem.

## For More Information

For more information on this report or other WhatTheyThink products and services, please visit [www.whattheythink.com](http://www.whattheythink.com).

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<sup>3</sup> There is some inconsistency among these various data sets, depending on when they are updated by the government. In some cases, we were able to include January 2024 data. In others December was the most recent update.

## 1. BUSINESS CONDITIONS

In November and December 2023, WhatTheyThink's Print Business Outlook Survey asked print business executives and owners about:

- perceptions of 2023 business conditions compared to 2022
- expectations of 2024 business conditions compared to 2023

Specifically, we asked about:

- revenues
- number of jobs/orders
- profits

In our 2020 survey, we had added two additional ranges—increased/decreased by 25%—to account for the impact of COVID and the recovery therefrom, and retained both of these ranges in 2021's and 2022's surveys to capture any residual pandemic extremes. In this survey, we retired these outlier categories and reverted back to “more than 10%.”<sup>4</sup>

### Revenues

#### 2023 Revenues

In terms of revenues, 26% of print businesses surveyed said that revenues for 2023 had increased more than 10% compared to 2022, and 19% said that revenues had increased between 5% and 10%. All told, just over one-half (57%) of print businesses surveyed reported an increase in revenues in 2023 compared to 2022—down a bit from 77% who said this last year.

We calculated an average change in revenues of +3.2% from 2022 to 2023 (compared to +11.6% from 2021 to 2022).<sup>5</sup> We also adjusted the average change in revenues for inflation, backing -3.1% out of the average change in revenues.<sup>6</sup> So, adjusted for inflation, revenues only grew +0.1% from 2022 to 2023. That's way down from last year—but recall that revenues had dropped -12.6% [-14.0% adjusted for inflation] from 2019 to 2020 when COVID hit). We also take some heart in the fact that inflation is down to 3.1% in January 2024 compared to 7.7% when we prepared this report last year at this time.

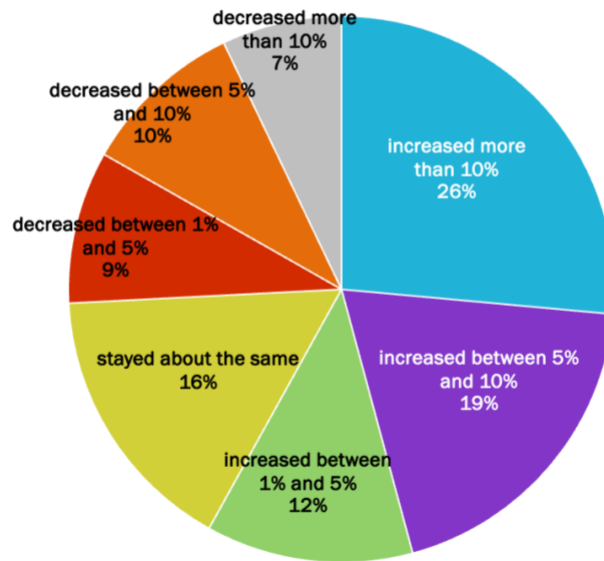
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<sup>4</sup> For now—unless something horrible happens, which, unfortunately, is not out of the realm of possibility

<sup>5</sup> The estimates were calculated using the mid-points of the percentage ranges and 12% for the “10% or more” ranges.

<sup>6</sup> Based on the current CPI as of this writing (January 2024)—3.1%.

## How Did Your 2023 Revenues Compare to 2022?



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N=155

	1-9 employees	10-19 employees	20-49 employees	50+ employees
increased more than 10%	41%	22%	24%	19%
increased between 5% and 10%	7%	33%	16%	26%
increased between 1% and 5%	7%	22%	18%	9%
stayed about the same	24%	17%	11%	14%
decreased between 1% and 5%	5%	6%	13%	10%
decreased between 5% and 10%	7%	0%	13%	12%
decreased more than 10%	7%	0%	5%	10%
Average change	+4.2%	5.8%	+2.6%	+2.1%
Average change adjusted for inflation	+1.1%	2.7%	-0.5%	-1.0%

If we look at survey results by establishment size, smaller businesses did better than large businesses.

For 1-9-employee shops, 41% said that revenues had increased 10% or more from 2022 to 2023 and 7% said they had increased between 5% and 10%. Their average revenue change was +4.2% before inflation, compared to +9.9% from 2021 to 2022.

For 10-19-employee shops, 22% said that revenues increased 10% or more, and 33% said they had increased between 5% and 10%. The average revenue change for these establishments was +5.8% before inflation, compared to +14.9% from 2021 to 2022.

Among 20-49-employee shops, 24% said that revenues had increased 10% or more, and 16% said revenues had increased between 5% and 10%. As many as 31% reported a revenue decrease in 2023. The average revenue change for these establishments was +2.6% before inflation, compared to +13.8% from 2021 to 2022.

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For 50+-employee shops, 19% said that revenues had increased 10% or more and 26% said they had increased between 5% and 10%. One-third (32%) reported revenue decreases in 2023. The average revenue change for these establishments was +2.1% before inflation—down from +10.6% from 2021 to 2022.

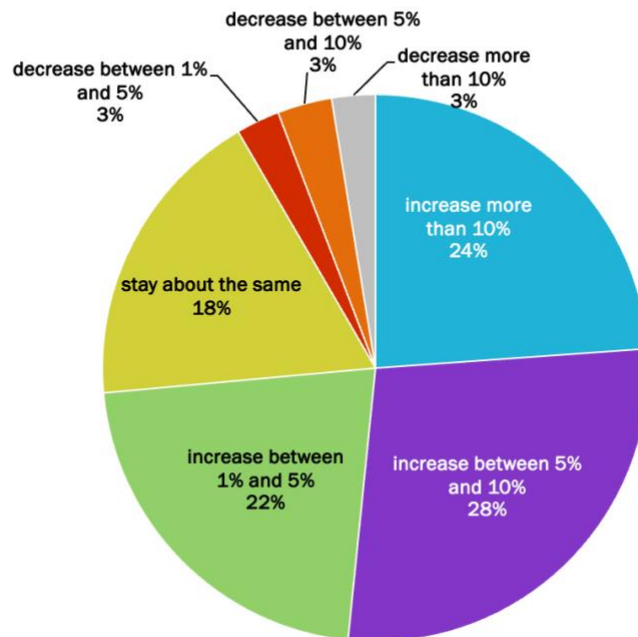
### 2024 Revenues

Last year, the general expectation was that 2023 would be a bit more muted than 2023—which was a realistic expectation, given what we just saw. Generally, print businesses are expecting 2024 to be a little better than 2023.

Eighteen percent of respondents expect revenues to increase by 10% or more in 2024 vs. 2023, 30% expect revenues to increase between 5% and 10%, and 17% expect revenues to increase between 1% and 5%. Twelve percent expect revenues to decrease in 2024 over 2023, which is less bearish than last year's expectations for 2023.

Overall, printing establishments expect a +4.3% change in revenues in 2024 (down from +6.7% last year)—or +1.2% if you adjust for inflation.

## How Do You Expect your 2024 Revenues to Compare to 2023?



WhatTheyTh!nk

N=155

	1-9 employees	10-19 employees	20-49 employees	50+ employees
increase more than 10%	27%	39%	11%	26%
increase between 5% and 10%	20%	28%	29%	33%
increase between 1% and 5%	22%	28%	29%	16%
stay about the same	24%	6%	18%	17%
decrease between 1% and 5%	2%	0%	8%	0%
decrease between 5% and 10%	2%	0%	5%	3%
decrease more than 10%	2%	0%	0%	5%
Average change	+4.9%	+7.7%	+3.8%	+5.3%
Average change adjusted for inflation	+1.8%	+4.6%	+0.7%	+2.2%

For 1-9-employee shops, 27% expect revenues to increase 10% or more in 2024 compared to 2023, while 20% expect revenues to increase between 5% and 10% and 22% expect revenues to increase between 1% and 5%. Six percent expect revenues to decrease in 2024. Overall, these businesses expect an average pre-inflation revenue growth of +4.9% in 2024, compared to the +7.9% they expected from 2022 to 2023.

For 10-19-employee shops, 39% expect revenues to increase 10% or more in 2024 compared to 2023, while 28% expect revenues to increase between 5% and 10% and 28% expect revenues to increase between 1% and 5%. No one in this group expects revenues to decrease in 2024.<sup>7</sup> Overall, these businesses expect an average pre-inflation revenue growth of +7.7% in 2023 compared to the +9.6% they expected from 2022 to 2023.

For 20-49-employee shops, 11% expect revenues to increase 10% or more in 2024, 29% expect revenues to increase between 5% and 10%, and 29% expect revenues to increase between 1% and 5%. Thirteen percent expect revenues to decrease in 2024. Overall, these businesses expect an average pre-inflation revenue growth of +3.8% in 2024 compared to the +6.4% they expected from 2022 to 2023.

For 50+-employee shops, 26% expect revenues to increase 10% or more in 2024, 33% expect revenues to increase between 5% and 10%, and 16% expect revenues to increase between 1% and 5%. Eight percent expect revenues to decrease in 2024. Overall, these businesses expect an average pre-inflation revenue growth of +5.3% in 2024, virtually identical to the +4.2% they expected from 2022 to 2023.

## Jobs/Orders

There often tends to be a bit of a disconnect between the number of jobs/orders and revenues, which is reflective of challenges in pricing, although this year they seem to be a little bit more in alignment than is usually the case. (Profits is another story.)

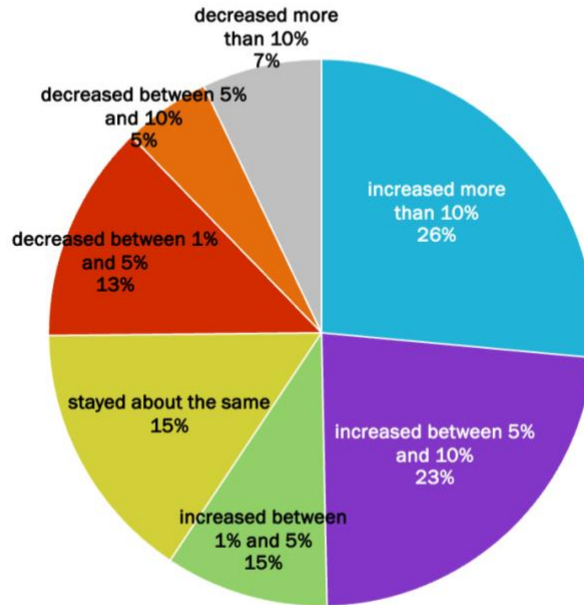
### 2023 Jobs/Orders

In terms of jobs/orders, 16% of print businesses surveyed said that jobs for 2023 had increased more than 10% compared to 2022. A further 23% said that jobs had increased between 5% and 10%, and 10% said jobs increased between 1% and 5%. Meanwhile, 25% said that the number of jobs had decreased in 2023 vs. 2022.

We calculated an average change in jobs of +3.7% from 2021 to 2022, down from +9.5% from 2021 to 2022. Fortunately, we don't need to adjust jobs for inflation.

<sup>7</sup> This is likely a consequence of our smaller than usual sample size.

## How Did Your 2023 Jobs/Orders Compare to 2022?



**WhatTheyTh!nk**

N=155

	1-9 employees	10-19 employees	20-49 employees	50+ employees
increased more than 10%	39%	28%	13%	26%
increased between 5% and 10%	17%	22%	32%	22%
increased between 1% and 5%	10%	17%	11%	7%
stayed about the same	12%	17%	13%	19%
decreased between 1% and 5%	12%	11%	13%	14%
decreased between 5% and 10%	2%	6%	13%	2%
decreased more than 10%	7%	0%	5%	10%
Average change	+4.9%	+4.8%	+2.3%	+3.3%

For 1-9-employee shops, 39% said that jobs/orders had increased 10% or more from 2022 to 2023, and a further 17% said jobs had increased between 5% and 10%. Twelve percent said that jobs had remained about the same, while 21% said jobs had decreased in 2023. The average job/order change for these businesses was +4.9%.

For 10-19-employee shops, 28% said that jobs/orders had increased 10% or more, and 22% said jobs had increased between 5% and 10%. Seventeen percent said that jobs had remained about the same, while 17% said jobs had decreased in 2023. The average job/order change for these businesses was +4.8%.

For 20-49-employee shops, 13% said that jobs/orders had increased 10% or more in 2023, but 32% said jobs had increased between 15% and 10%. Still, 31% said that jobs had decreased in 2023. The average job/order change for these businesses was +2.3%.

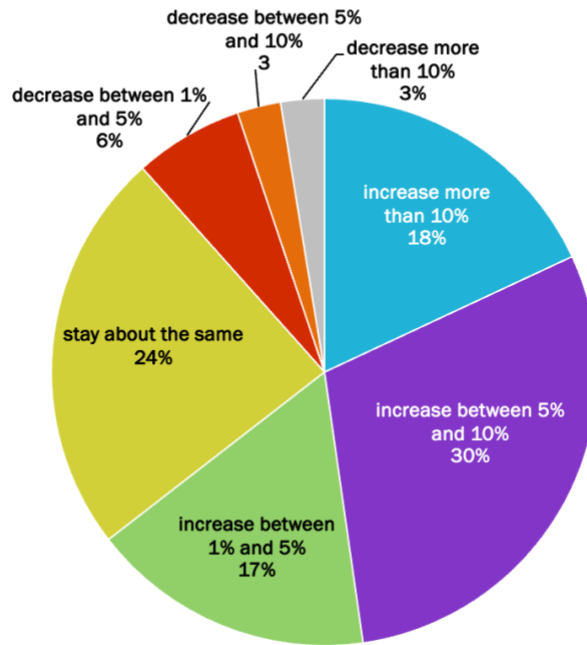
And for 50+-employee shops, 26% said that jobs/orders had increased 10% or more, and 22% said jobs had increased between 5% and 10%. One-fifth (19%) said that jobs had remained about the

same while 26% reported a decrease in jobs in 2023. The average job/order change for these businesses was +3.3%.

**2023 Jobs/Orders**

As for anticipated 2023 jobs/orders, shops are fairly bearish this survey. Eighteen percent of respondents expect jobs/orders to increase by 10% or more in 2024, while 30% expect jobs to increase between 5% and 10% and 17% expect jobs to increase between 1% and 5%. One-fourth (24%) expect jobs to stay about the same, and 12% expect jobs to decrease in 2024. The average expected change in jobs/orders is +4.3%, down from the +6.6% they had expected for 2023.

**How Do You Expect Your 2024 Jobs/Orders to Compare to 2023?**



**WhatTheyTh!nk**

N=155

	1-9 employees	10-19 employees	20-49 employees	50+ employees
increase more than 10%	24%	33%	5%	17%
increase between 5% and 10%	22%	33%	34%	31%
increase between 1% and 5%	15%	17%	24%	14%
stay about the same	24%	17%	21%	28%
decrease between 1% and 5%	7%	0%	13%	3%
decrease between 5% and 10%	5%	0%	3%	2%
decrease more than 10%	2%	0%	0%	5%
Average change	+4.2%	+7.2%	+3.5%	+4.1%

Among 1-9-employee shops, 24% expect jobs/orders to increase 10% or more, 22% expect them to increase between 5% and 10%, and 15% expect them to increase between 1% and 5%. One-fourth (24%) percent expect jobs to stay about the same in 2024, while 14% expect to see jobs decrease.

The expected change in jobs/orders for these businesses is +4.2%, down from the +6.4% they had expected for 2023.

Among 10–19-employee shops—the most optimistic demographic category—33% expect jobs/orders to increase 10% or more, 33% expect them to increase between 5% and 10%, and 17% expect them to increase between 1% and 5%. Seventeen percent expect jobs to stay about the same in 2024, while only no one expects to see jobs decrease.<sup>8</sup> The expected change in jobs/orders for these businesses is +7.2%, down from the +10.0% they had expected for 2023.

Among 20–49-employee, only 5% expect jobs/orders to increase 10% or more, while 34% expect them to increase between 5% and 10% and 24% expect them to increase between 1% and 5%. Twenty-one percent expect jobs to stay about the same in 2024, while 16% expect to see jobs decrease. The expected change in jobs/orders for these businesses is +3.5%, down from the +6.4% they had expected for 2023.

And among 50+-employee shops, 17% expect jobs/orders to increase 10% or more, 31% expect them to increase between 5% and 10% and 14% expect them to increase between 1% and 5%. Twenty-eight percent expect jobs to stay about the same in 2024, while 10% expect to see jobs decrease. The expected change in jobs/orders for these businesses is +4.1%, down from the +5.5% they had expected for 2023.

## Profitability

We usually take this opportunity to tell our “tale of two cities,” as there has traditionally been a profitability gap between large and small printers. That is, large printers (those with more than \$25 million in assets) are seeing less profitability than small printers (those with less than \$25 million in assets), driving down overall industry profitability. The last few years’ data was a bit anomalous, but last year, we started seeing some signs that our usual profitability patterns are returning.

### 2022 Profits

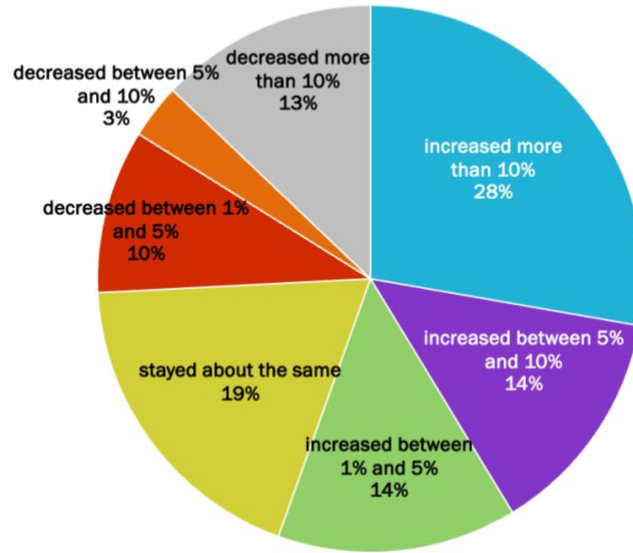
Profits in 2023 were only slightly up over 2022, and down if you adjust for inflation; 28% reported that profits increased 10% or more, 14% reported that profits had increased between 5% and 10%, and 14% reported that profits had increased between 1% and 5%. Nineteen percent said that profits had remained about the same, and 26% said that profits had decreased compared to 2022. (Note that these are not the *rates* of profitability, but are the change in the dollar value of total profits compared to the prior year.)

The average change in profits was +2.7% or, adjusted for inflation, -0.4%.

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<sup>8</sup> This is likely a consequence of our smaller than usual sample size.

## How Did Your 2023 Profitability Compare to 2022?



**WhatTheyTh!nk**

N=155

	1-9 employees	10-19 employees	20-49 employees	50+ employees
increased more than 10%	39%	28%	26%	21%
increased between 5% and 10%	7%	17%	16%	16%
increased between 1% and 5%	17%	22%	16%	9%
stayed about the same	24%	22%	24%	10%
decreased between 1% and 5%	2%	11%	8%	16%
decreased between 5% and 10%	2%	0%	3%	5%
decreased more than 10%	7%	0%	8%	24%
Average change	+4.6%	+5.0%	+3.5%	+0.2%
Average change adjusted for inflation	+1.5%	+1.9%	+0.4%	-2.9%

In this survey, it's small firms that are seeing the highest profitability compared to the larger establishments.

For 1-9-employee shops, 39% said that profits had increased 10% or more from 2022 to 2023, while 7% said profits had increased between 5% and 10%, and 17% said profits had increased between 1% and 5%. Twenty-four percent said that profits stayed about the same, and 11% said profits had decreased. The average pre-inflation-adjustment change in profits for these businesses was +4.6%, down from last year's +7.6%.

For 10-19-employee shops, 28% said that profits had increased 10% or more from 2022 to 2023, while 17% said profits had increased between 1% and 10%, and 22% said profits had increased between 1% and 5%. Twenty-two percent said that profits stayed about the same, and 11% said profits had decreased. The average pre-inflation-adjustment change in profits for these businesses was +5.0%, down from last year's +11.7%.

For 20–49-employee shops, 26% said that profits had increased 10% or more from 2022 to 2023, while 16% said profits had increased between 5% and 10%, and 16% said profits had increased between 1% and 5%. Twenty-four percent said that profits stayed about the same, and 19% said profits had decreased. The average pre-inflation-adjustment change in profits for these businesses was +3.5%, down from last year’s +11.8%.

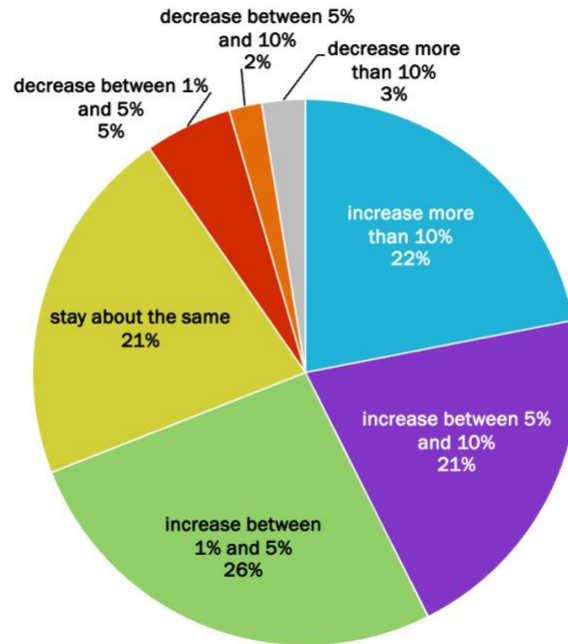
For 50+-employee shops, 21% said that profits had increased 10% or more from 2022 to 2023, while 16% said profits had increased between 5% and 10%, and 9% said profits had increased between 1% and 5%. Ten percent said that profits stayed about the same, and a whopping 45% said profits had decreased (30% said this last year). The average pre-inflation-adjustment change in profits for these businesses was +0.2%, down from last year’s +6.6%.

### 2023 Profits

Profitability expectations for 2024 are a bit muted.

Overall, 22% of respondents expect profits to increase 10% or more in 2024, 21% expect them to increase between 5% and 10%, and 26% expect them to increase between 1% and 5%. Twenty-one percent expect profits to stay about the same, while 10% expect profits to decrease in 2024. The average pre-inflation expected change in profits is +4.5%.

## How Do You Expect Your 2024 Profitability to Compare to 2023?



**WhatTheyTh!nk**

N=155

	1-9 employees	10-19 employees	20-49 employees	50+ employees
increase more than 10%	22%	33%	18%	21%
increase between 5% and 10%	17%	22%	16%	26%
increase between 1% and 5%	22%	28%	42%	19%
stay about the same	27%	11%	16%	24%
decrease between 1% and 5%	5%	6%	5%	5%
decrease between 5% and 10%	5%	0%	3%	0%
decrease more than 10%	2%	0%	0%	5%
Average change	+3.8%	+6.4%	+4.4%	+4.3%
Average change adjusted for inflation	+0.7%	+3.3%	+1.3%	+1.2%

Among 1–9-employee shops, 22% expect profits to increase 10% or more from 2023 to 2024, 17% expect them to increase between 5% and 10%, and 22% expect them to increase between 1% and 5%. Twenty-eight percent expect profits to stay about the same, while 12% expect profits to decrease in 2024. The average pre-inflation expected change in profits is +3.8%.

Among 10–19-employee shops, 33% expect profits to increase 10% or more, 22% expect them to increase between 5% and 10%, and 28% expect them to increase between 1% and 5%. Eleven percent expect profits to stay about the same, while a scant 6% expect profits to decrease. The average pre-inflation expected change in profits is +6.4%, making these establishments the most bullish of the employee size breakdowns<sup>9</sup>.

Among 20–49-employee shops, 18% expect profits to increase 10% or more, 16% expect them to increase between 5% and 10%, and 42% expect them to increase between 1% and 5%. Sixteen percent expect profits to stay about the same, and 8% expect profits to decrease in 2024. The average pre-inflation expected change in profits is +4.4%.

Among 50+–employee shops—which are a bit more positive-looking this year—21% expect profits to increase 10% or more, 26% expect them to increase between 5% and 10%, and 19% expect them to increase between 1% and 5%. Twenty-four percent expect profits to stay about the same, while 10% expect profits to decrease in 2023. The average pre-inflation expected change in profits is +4.3%.

### Business Conditions Summary

In the table below, we summarize our calculated average changes in revenues, jobs/orders, and profits by size category.

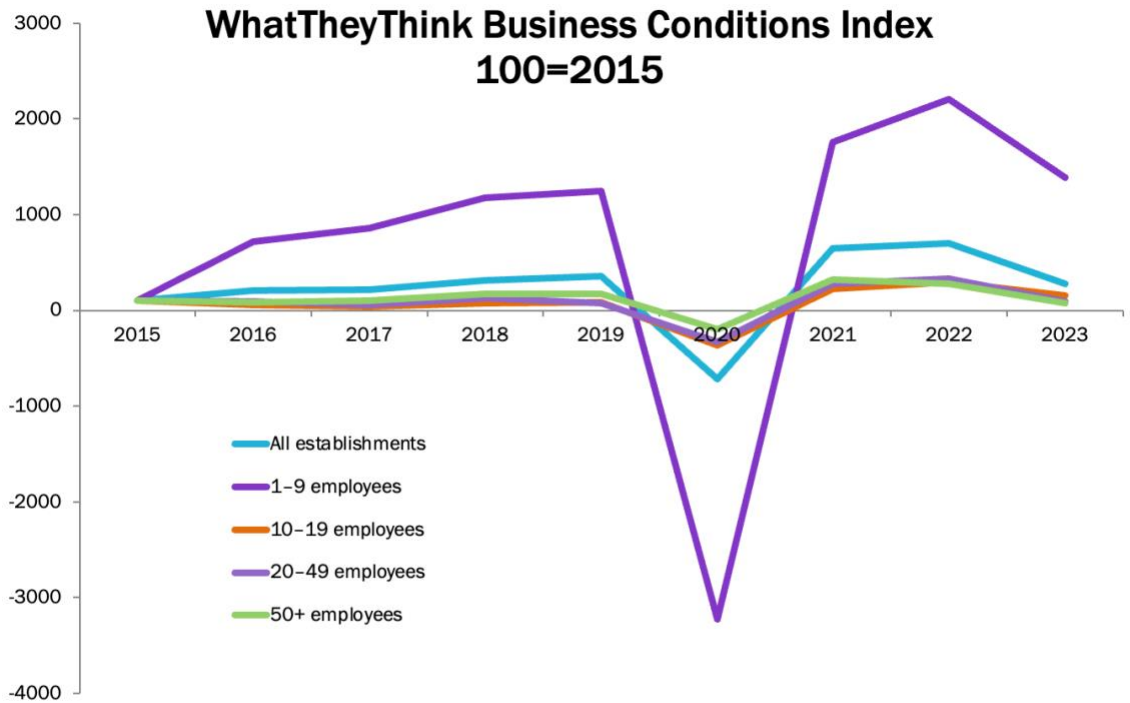
2023	All Responses	1-9 employees	10-19 employees	20-49 employees	50+ employees
<i>Revenues</i>					
Average change	+3.2%	+4.2%	+5.8%	+2.6%	+2.1%
Average change adjusted for inflation	+0.1%	+1.1%	+2.7%	-0.5%	-1.0%
<i>Jobs/Orders</i>					
Average change	+3.7%	+4.9%	+4.8%	+2.3%	+3.3%
<i>Profitability</i>					
Average change	+2.7%	+4.6%	+5.0%	+3.5%	+0.2%
Average change adjusted for inflation	-0.4%	+1.5%	+1.9%	+0.4%	-2.9%

<sup>9</sup> Although this may also be a function of the small sample size in this category—although we did find similar results last year with a larger sample size.

2024	All Responses	1-9 employees	10-19 employees	20-49 employees	50+ employees
<b>Revenues</b>					
Average change	5.1%	4.9%	7.7%	3.8%	5.3%
Average change adjusted for inflation	2.0%	1.8%	4.6%	0.7%	2.2%
<b>Jobs/Orders</b>					
Average change	+4.3%	4.2%	7.2%	3.5%	4.1%
<b>Profitability</b>					
Average change	4.5%	3.8%	6.4%	4.4%	4.3%
Average change adjusted for inflation	1.4%	0.7%	3.3%	1.3%	1.2%

### The WhatTheyThink Business Conditions Index

We have been conducting these surveys long enough that we have enough data points to resurrect a metric that dates back to the old TrendWatch days: the Business Conditions Index (BCI), which fell substantially in 2020—especially for small print shops and subsequently rebounded strongly—especially for small print shops, although 2023 saw a bit of a drop across all size categories.



## WhatTheyTh!nk

We indexed business conditions to 2015,<sup>10</sup> the first year we began these regular surveys. Until 2020, 2015 was the gold standard for a pretty lousy year for the industry, so it had been easy to see improvement in the subsequent years. The “tale of two cities” gap between large and small shops had

<sup>10</sup> We use our revenues data to generate this index.

been looking pretty apparent, although 1–9–employee firms appear to be a city unto themselves, leading the pack by far at least in terms of revenues—and then plummeting even more dramatically in 2020, rebounding just as dramatically in 2021, and falling almost as dramatically in 2023. 2020 and its immediate aftermath were outlier years (hopefully the last of them) so we should look at 2022 – 2023 as something of a return to normalcy, and not view a slight drop in BCI as anything to get overly alarmed about.

In a normal year, smaller print businesses are able to transition to new products and technologies much more nimbly—or with more agility—than larger businesses. And, given that they are, for the most part, all-digital shops, that helps them adapt to a changing product mix, as well as keep overhead low. And while all of these things were what helped many print businesses transition to new kind of products and services during the pandemic, smaller shops didn't always have the resources to do so, and even a modest disruption in their shop volume and cashflow caused great hardship for them. There were few pandemic-related effects in 2022 (aside from people continuing to get sick), but there was the unholy trinity of post-pandemic challenges that businesses had to deal with: the difficulty with getting supplies (mostly paper) and the cost of those supplies, employment-related challenges, and inflation<sup>11</sup>. Two of those three are under control as this report is being finalized, with difficulty finding staff being the issue that has persisted into 2023 and will likely continue. Hence the above-average interest this survey in automation and, as we shall see, heightened concerns with productivity.

## Looking Ahead

At the moment, business conditions are generally OK across the industry. We have rebounded from the doldrums of 2020, and, as we said in last year's report, 2022 was the year everyone got “back into the black”—representing all the lost work coming back. 2023 was the logical sequel to that—“panic! at the disco”—with business falling off. We expect, then, that 2024 will continue along the road to normalcy.

In this space, we usually add our caveat about “survivor bias,” which we suspect has been a greater factor in the post-pandemic surveys than in previous surveys. (We explain it in great detail in Appendix C.) The pandemic resulted in a loss of establishments (see Section 7 for *County Business Patterns* data that includes the net number of printing establishments as of early 2021 and gives us some idea of what happened to our industry demographically), and those that “survived” were obviously healthier than those that had exited the industry, which may skew the data in a more positive direction.

Ultimately, 2023 had been a good year—challenging in certain ways, and not as good as 2022, but generally good. The year-over-year data can be a little erratic, as we saw business plummet in 2020, rebound strongly in 2021, and now we're settling into a post-pandemic normalcy. Shops are, on the whole optimistic about 2024, and for good reason—God willin' and the COVID don't rise.

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<sup>11</sup> When we think “inflation” we usually focus on things like consumables prices, but rents, leases, and utilities have also been seeing high inflationary costs, which can really take a bite out of overall profitability, especially given that businesses have little control over these costs and few options for mitigating them.

## 2. CHALLENGES, OPPORTUNITIES, AND INVESTMENTS

In this section, we take a look at what print businesses see as their top challenges and their biggest business and/or sales opportunities in the next 12 months, as well as what they're planning on buying to meet those challenges or pursue those opportunities.

These kinds of questions help qualify the data obtained in the Business Conditions part of the survey. After all, it's one thing to know what current and expected business conditions are, but quite another to understand *why* they are what they are. These questions' responses also help verify or refute business conditions data which, as you have probably seen, are not entirely objective measures of a company's performance.

### Top Business Challenges

Last year, the top challenge was "availability of consumables and supplies," selected by 45% of all print businesses. This year, it dropped to 11%. So the "supply chain issues" that were the talk of the town in 2022 are generally done. (Last year, the number two challenge was the related "consumables and supplies pricing," selected by 42%. This dropped to 29% this year...funny how when prices go up they don't usually come back down.)

This year's number one challenge is one that has not historically been *too* acute but has risen to the top in recent surveys: "increasing plant productivity." As recently as 2019, it was only at 18%, but leapt up to 30% in 2020, hit an all-time high of 33% in 2021, and receded a bit in 2022 to 29%. But in this survey, it has hit a new all-time high at 44%. The big issue has now become: how can businesses keep producing jobs in a timely fashion?

The number two challenge is the perennial favorite "national economic conditions," selected by 41%, up from 39% last year. Some of this was due to inflation (which hit 7+% a year ago, but is now down to 3.1%), as well as the general sense that the economy was doing poorly—which it most decidedly was not. (See Section 8.)

At number three this year is "finding qualified production personnel" at 39%, up from 33% last year and slightly below its all-time high of 41% in 2021 (it had been at 23% in 2020 and 19% in 2019). This had been a nettlesome issue in the Before Times, but has become especially acute post-pandemic. After all, finding production staff also impacts the ability to get jobs out the door, so solutions to this challenge often involve paying more for these positions (which then necessitates upping current employees' salaries to keep them from bolting) and/or increasing benefits. Or, instead, trying to automate as much as possible. (See Section 5 for the results of our specialty question about automation.) This challenge is also reflected in the responses to the Hiring Plans questions (see Section 4).

The number four challenge is "competition from other print providers," selected by 35%. This had been a big issue some years ago: it was in the 33–39% range from 2016 to 2018, dropped into the 20%*s* in 2019, and then during the pandemic years bottomed out at 14% and was only at 17% last year. Now it's back up to his historical high, as shops sense that business has become cutthroat again.

Rounding out the top five, and not unrelated to all of the foregoing, is "pricing," selected by 34%, down only slightly from 36% last year and below its all-time high of 41% in 2021 (for historical context, it had been at 29% in 2020 and at 26% in 2019). Pricing has always been a modest challenge, but now in the face of rising costs, inflation, and labor challenges, how to price jobs has become even more complicated.

So all of these top challenges put a great deal of pressure on profit margins—which, let's face it, were fairly narrow even at the best of times. So it's understandable why we saw such a disconnect in the last section between revenues/jobs and profitability.

Another possible explanation for the bearish business conditions, and even more bearish business expectations, is that 2020's number one challenge and last year's number three—"regaining business lost due to COVID," has dropped from 55% to 39% to 15% to 9%—as we said in this space last year,

most of the work that was likely to be recovered has already been recovered, so plant volumes are settling back down to a state of normalcy.

If you were at PRINTING United last fall, a hot topic of discussion was automation, which can potentially be a solution to some of these challenges. But to what extent is “managing workflow automation” a challenge? This year, it was selected by 32%, up from 23% to an all-time high, well above its historical level.

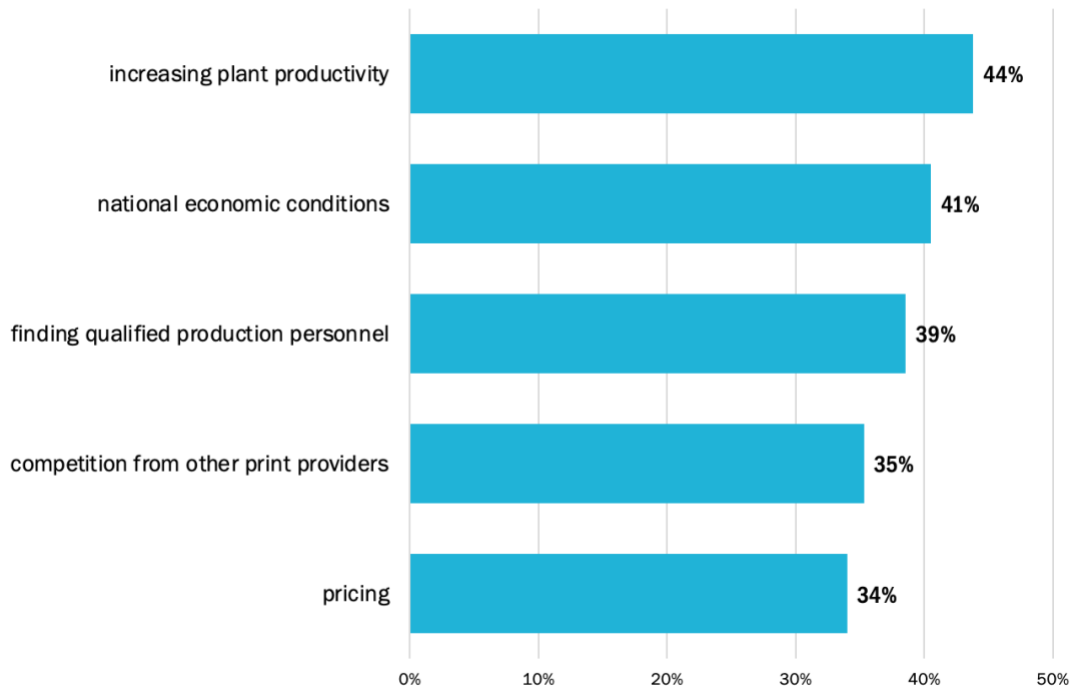
Some of the more traditional challenges have been masked by the new generation of challenges: “finding qualified sales personnel,” is at 25%, virtually unchanged for the past two years—as recently as 2019 it had been down at 15%. “Capabilities of sales personnel”—a typical top five gripe—is up to 29% from 20%. This may represent the attitudes of the latest generation of print business owners who are less likely than their forebears to throw their sales guys under the bus when business isn’t great.

One challenge we added to this survey was “diversifying print product/application offerings,” which debuted at only 18%. However, we’ll look at this again in the Business Opportunities section.

Also at 18% is “financing costs of our equipment,” up from 10% (it is usually between 1% and 6%) to an all-time high of 18%. Indeed, high interest rates were a big deterrent to major capital investments in 2023.

Looking at some of these challenges through the lens of top opportunities can put them in perspective (see below).

### Top 5 Business Challenges



N=155

The full Business Challenges chart is at the end of this section.

Looking at the challenges by shop size can give us a little better handle on these concerns:

	1-9 employees	10-19 employees	20-49 employees	50+ employees
increasing plant productivity	23%	50%	47%	54%
managing workflow automation	18%	39%	37%	37%
competition from other print providers	35%	17%	45%	35%
diversifying print product/application offerings	15%	22%	26%	12%
capabilities of sales personnel	15%	33%	39%	32%
capabilities of production personnel	18%	11%	29%	28%
understanding the needs of today's communications buyers	20%	17%	13%	5%
availability of consumables and supplies	15%	11%	13%	7%
consumables and supplies prices	48%	28%	26%	18%
national economic conditions	43%	39%	42%	39%
local economic conditions	40%	17%	32%	5%
financing costs of our equipment	13%	0%	29%	19%
finding capital for investments	8%	0%	11%	14%
need for employee training	10%	17%	26%	25%
finding qualified sales personnel	8%	39%	34%	26%
finding qualified production personnel	18%	44%	58%	39%
increasing employee benefit costs	13%	22%	21%	23%
profitably handling shorter runs	18%	6%	11%	14%
deciding whether to keep or discard our offset equipment	13%	6%	5%	5%
regaining business lost due to COVID	20%	11%	3%	5%
keeping my employees safe from COVID	5%	0%	0%	2%
loss of print business to digital media	23%	6%	18%	9%
pricing	48%	28%	34%	26%
job tracking	15%	0%	5%	11%
print MIS implementation	10%	0%	11%	9%
migrating production to the cloud	0%	0%	0%	0%
migrating business functions to the cloud	0%	0%	5%	2%
migrating customer service and sales to the cloud	0%	0%	5%	0%
training employees to use cloud applications	0%	0%	8%	2%
keeping up with technological changes	28%	11%	24%	16%
understanding/implementing artificial intelligence (AI)	15%	11%	16%	12%
making our facility/business more environmentally sustainable	3%	0%	8%	7%
owner/management retirement	28%	17%	13%	9%

	1-9 employees	10-19 employees	20-49 employees	50+ employees
retirement of key production personnel	8%	17%	26%	18%
selling our business	18%	11%	3%	9%
finding business(es) to acquire	13%	11%	11%	21%
adding/updating web-to-print/online storefront	5%	6%	13%	7%
getting web-to-print to work on smartphones and other mobile devices	3%	0%	0%	2%
adding wide-format equipment/services	8%	0%	5%	7%
adding packaging printing equipment/services	3%	0%	8%	9%
adding 3D printing equipment/services	0%	6%	3%	0%
adding interactive print elements to print products (QR codes, augmented reality [AR])	0%	0%	3%	2%
transitioning jobs from offset to high-speed digital printing equipment	3%	0%	16%	7%
adding non-print media capabilities (web design, app development, social media management, etc.)	5%	0%	3%	2%
competing against digital media agencies	5%	0%	8%	4%
Other (please specify)	5%	0%	5%	5%

1-9 employees: The top business challenges are “consumables and supplies prices” (48%, down from 61% last year), “pricing” (also at 48%, up from 38%, and wa-y-y-y up from 7% in 2021), “national economic conditions” (43%, up from 38%), and “local economic conditions” (40%, up from 33%).

10-19 employees: The top challenges are “increasing plant productivity” (50%, up from 33% and an all-time high for this category), “finding qualified production personnel” (44%, up a scosh from 42%), and a tie at 39% among “national economic conditions” (down from 45%), “managing workflow automation” (way up from 18%), and “finding qualified sales personnel” (up from 33%).

20-49 employees: The top three challenges are “finding qualified production personnel” (58%, up from 44% and an all-time high), “increasing plant productivity” (47%, up from 42%), and “competition from other print providers” (45%, way up from 12%).

50+ employees: The top challenge for this category is a tie between “finding qualified production personnel” (39%, up one percentage point) and “national economic conditions” (39%, also up one point). Number two is “managing workflow automation” (37%, up from 30%, and an all-time high), followed by “competition from other print providers” (35%, up from 16%).

### Business Opportunities

We never like to see “improving economic conditions” as a top opportunity because it isn’t really an opportunity. It’s one of those “rising tide lifts all boats” kinds of things and while the recovery from the pandemic-induced recession did indeed help bring volumes back, drumming up new business requires a more proactive strategy. So to see “improving economic conditions” as this year’s top “opportunity” (at 30%, up one percentage point) is disheartening—especially when you consider that it would be hard for the economy to get any better, as we’ll see in Section 8. So we’re not sure what “improving economic conditions” would literally entail.

Number two is the pre-pandemic number one opportunity—“customers outsourcing more work to us” at 28%, down from 30% and a bit below 2021’s 37%. Our boilerplate explanation for this item is that there is always the danger that customers will be able to satisfy a substantial amount of their own printing needs in-house, whether that be “quick print” work or even some wide-format or other specialty printing. This is especially the case in the current environment, where businesses throughout the economy need to cut costs as much as possible. A new wrinkle to this opportunity now is that companies throughout the economy simply don’t have the staff to even handle their primary business tasks, let alone printing, so the more that can be outsourced, the better—for print customers and printers.

At number three is “hiring new salespeople” at 26%, up from 22% to an all-time high for this opportunity. This had been a perennial top opportunity back in the day, and although it had been losing favor towards the end of the 2010s, it has decidedly come back. There has always been the sense that “if we had better sales guys—especially ones with books of business—we’d be golden.” Unfortunately, print sales works less and less like that anymore, and “adding web-to-print/online storefront” is down from 8% to 7%, so that’s not encouraging.

A new item we added to this survey, “diversifying print product/application offerings,” debuted at number four at 25%. Recall that this was pretty low as a challenge, so the sense is that print businesses know how to add new capabilities, they just have to do it.

Rounding out the top five is “helping customers integrate print and non-print marketing campaigns” at 22%, up from 19%.

Last year, we added “adding high-speed production inkjet printing equipment (like HP PageWide)” which came in at 19%—but is down to 8% this year. “Adding toner-based digital printing equipment (like HP Indigo, Xerox iGen)” was down to 8% from 12%, and we’ll look at these digital printing capabilities in more detail in Planned Investments.

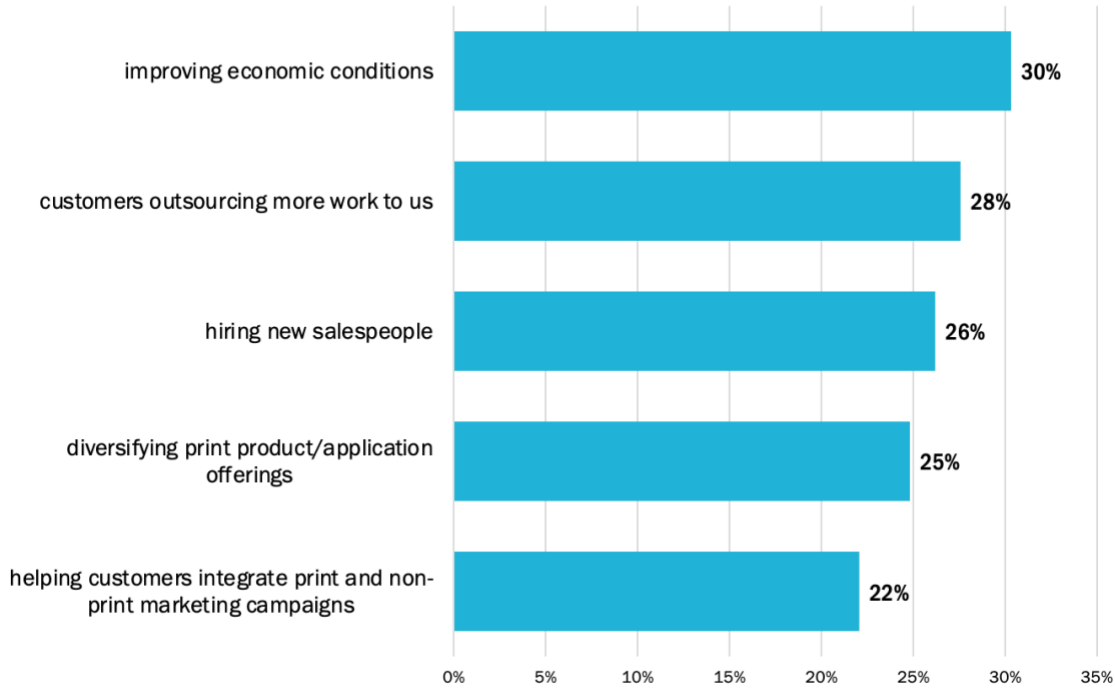
A related new item we added to last year’s survey was “replacing toner-based digital equipment with production inkjet,” which debuted at 13% and is down to 8%. Meanwhile, “disposing of offset equipment to concentrate on digital printing” is unchanged at 6%.

On the other hand, “broadening bindery/finishing equipment/services” is down from 16% to 12%. However, we note that “adding ‘digital enhancement finishing technologies (like Scodix)” is depressingly down from 6% to 3%, so we’re still largely talking about traditional binding and finishing.

Some other “diversifying print offering” opportunities are:

- adding packaging printing capabilities: 9%, up from 4% last year
- adding digital label/wrapper printing capabilities: 4% (new to this year’s survey)
- adding specialty or industrial printing capabilities: 3% (new to this year’s survey)
- adding textile/fabric printing for décor/furnishings: 3% (new to this year’s survey)
- adding textile/fabric printing for soft signage: 3% (new to this year’s survey)
- adding textile/fabric printing for apparel: 1% (new to this year’s survey)
- adding traditional signage fabrication/construction capabilities: 2% (new to this year’s survey)
- adding 3D printing capabilities: 0%, down from 4%

### Top 5 New Business Opportunities



N=145

The full New Business Opportunities table is at the end of this section.

Looking at the opportunities by shop size can give us a little better idea of what’s going on:

	1-9 employees	10-19 employees	20-49 employees	50+ employees
improving economic conditions	38%	33%	31%	24%
customers outsourcing more work to us	32%	22%	22%	30%
hiring new salespeople	14%	22%	36%	30%
increasing sales through print brokers	8%	11%	14%	15%
partnering with other print providers	22%	11%	25%	19%
diversifying print product/application offerings	27%	22%	36%	17%
offering electronic/non-print services for customers (web design, app development, social media management, etc.)	5%	0%	6%	4%
offering interactive print technologies to customers (like QR codes, augmented reality)	5%	0%	17%	4%
helping customers integrate print and non-print marketing campaigns	22%	22%	22%	22%

	1-9 employees	10-19 employees	20-49 employees	50+ employees
using marketing automation for our business (like HubSpot, Eloqua, Marketo)	0%	17%	11%	7%
selling marketing automation services to our customers	5%	6%	8%	4%
adding additional offset printing equipment	0%	11%	3%	9%
adding toner-based digital printing equipment (like HP Indigo, Xerox iGen)	11%	6%	14%	6%
adding high-speed production inkjet printing equipment (like HP PageWide, Canon ProStream)	11%	6%	8%	9%
replacing toner-based digital equipment with production inkjet	8%	0%	11%	9%
customized, personalized, or variable-data printing jobs	11%	17%	11%	15%
disposing of offset equipment to concentrate on digital printing	11%	0%	8%	4%
broadening bindery/finishing equipment/services	14%	11%	14%	11%
adding “digital enhancement” finishing technologies (like Scodix, Highcon, MGI)	3%	0%	6%	2%
adding wide-format printing capabilities	5%	11%	6%	9%
adding textile/fabric printing for soft signage	3%	6%	3%	2%
adding textile/fabric printing for apparel	3%	0%	0%	0%
adding textile/fabric printing for décor/furnishings	0%	11%	6%	0%
adding packaging printing capabilities	3%	11%	17%	7%
adding digital label/wrapper printing capabilities	5%	6%	3%	4%
adding specialty or industrial printing capabilities	0%	11%	6%	2%
adding vehicle graphics/wrapping capabilities	0%	6%	3%	2%
adding traditional signage fabrication/construction capabilities	3%	0%	6%	0%
adding dynamic digital signage (DDS) capabilities	3%	0%	0%	0%
adding 3D printing capabilities	0%	0%	0%	0%
adding interactive print elements to print products (QR codes, augmented reality [AR])	0%	0%	8%	4%
sign installation	0%	11%	3%	0%
broadening fulfillment, shipping, mailing capabilities	11%	11%	17%	13%
automating production	16%	22%	17%	20%
adding web-to-print/online storefront	5%	22%	6%	4%

	1-9 employees	10-19 employees	20-49 employees	50+ employees
print MIS implementation	3%	11%	14%	13%
implementing artificial intelligence (AI)	8%	0%	8%	9%
getting more customers using smartphones and other mobile devices	3%	0%	0%	4%
migrating production to the cloud	3%	0%	0%	2%
migrating business functions to the cloud	3%	0%	3%	0%
migrating customer service and sales to the cloud	3%	0%	0%	0%
training employees to use cloud applications	3%	0%	3%	2%
acquiring another company	11%	17%	17%	24%
selling our company	16%	0%	3%	7%
becoming part of a print or sign franchise (like Alphagraphics, FASTSIGNS)	3%	0%	0%	2%
helping clients get their websites to work on mobile devices	5%	0%	3%	4%
video production services	0%	6%	0%	2%
Other (please specify)	14%	0%	6%	9%

1-9 employees: The top opportunities are “improving economic conditions (38%, up from 33%, though way down from 73% in 2020), “customers outsourcing more work to us” (32%, down from 38%), and “diversifying print product/application offerings,” debuting at 27%.

10-19 employees: The top opportunity is “improving economic conditions” (33%, down from 50%). The number two opportunity is a six-way tie at 22% among “customers outsourcing more work to us” (down from 28%), “diversifying print product/application offerings” (new this survey), “helping customers integrate print and non-print marketing campaigns” (up from 19%), “automating production” (up from 9%), “hiring new salespeople” (down from 25%), and “adding web-to-print/online storefront” (up from 13%). Tied at number three at 17% are “customized, personalized, or variable-data printing jobs” (up from 13%), “acquiring another company” (down from 19%), and—interesting—“using marketing automation for our business (like HubSpot, Eloqua, Marketo) (up from 6%).

20-49 employees: These shops’ top business opportunities are “diversifying print product/application offerings” (debuting at 36% among these businesses), “hiring new salespeople” (unchanged at 36%), “improving economic conditions” (31%, up from 17%), and “partnering with other print providers” (25%, up from 14%).

50+ employees: The top opportunities are “hiring new salespeople” (30%, up from 21%), “customers outsourcing more work to us” (30%, up from 24%), “improving economic conditions” (24%, up one point from 23%), “acquiring another company” (24%, up from 18%), and “helping customers integrate print and non-print marketing campaigns” (22%, down from 24%).

## Planned Investments

What are print businesses planning to buy in 2024? Last year's survey intimated that 2023 would be a busy one for investments; it was the first time that "we have no planned investments" was not the top item.

However, reality intruded to some extent, as 2023 was a lousy year for capital investment, and for one predominant reason: high interest rates—implemented ostensibly to help reduce inflation—made any financing costs prohibitive, or at least worth putting off until rates come down (we can tell because, as we saw in the last section, "financing costs of our equipment" came in at an all-time high of 18% in our Business Challenges). Naturally, this doesn't apply to things like software, but for anything that requires financing, we would expect that unless it's an emergency or a plant really needs the extra capacity or capabilities, any major equipment purchases will likely be put off until rates come down.

And that could in part be why "we have no planned investments" has returned to the top of the Planned Investments list, selected by 24% of respondents, up from 15% (its high had been in 2019 at 32%).

At the top of the list of planned investments is the traditional number one item, "finishing/bindery equipment for digital production" (22%, up from 18% to an all-time high). As we usually say in this spot, companies have spent the past decade or so broadening their digital equipment capabilities—and now they're broadening their inkjet equipment—and they have since seen the need to add inline or nearline finishing.

Three years ago, "workflow automation software" was a top three item, but last year it dropped to an all-time low of 8%. Now, it's back up to 17%. We'll say more about automation in Section 5.

Finishing isn't just for digital: "finishing/bindery equipment for offset/analog production" is unchanged at 16%.

There is a three-way tie at 12% among "mailing equipment/software" (up from 10%), "color quality control (measurement equipment, software, hardware)" (up from 8%), and "additional space/new location" (up from 10%).

In previous surveys, we had included "high-speed production inkjet printing equipment (like HP PageWide)"—a bit of a catchall category. Last year, it was selected by 13%, an all-time high. So this year, we decided to be more specific about what kinds of production inkjet equipment they were investing in, based on Inkjet Insight's Device Finder classifications.<sup>12</sup> Here is what our respondents selected:

- high-speed production inkjet printing equipment—rollfed (like HP PageWide, Canon ProStream): 4%
- high-speed production inkjet printing equipment—cutsheet-B1 size (like Landa Nanography S10, Komori Impremia): 2%
- high-speed production inkjet printing equipment—cutsheet-B2 size (like Fujifilm JPress, Konica Minolta AccurioJet): 6%
- high-speed production inkjet printing equipment—cutsheet-B3 size (like Canon varioPRINT, Xerox Baltoro): 3%
- high-speed production inkjet printing equipment for packaging: 1%
- high-speed production inkjet printing equipment for industrial printing: 1%
- high-speed production inkjet printing equipment—other: 1%

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<sup>12</sup> Check it out at <https://apps.inkjetinsight.com/device-finder/>.

Lest we think inkjet rules the digital equipment roost here, “toner-based color digital press (like HP Indigo, Xerox iGen)” is at 11% for the third survey in a row, and an all-time high for this investment category.

Some investment categories in labels and packaging include:

- digital label printing equipment: 9%, up from 7% and an all-time high
- packaging press/printer–corrugated: 0%, down from 2%
- packaging press/printer–folding carton: unchanged from last year at 4%
- packaging press/printer–flexible packaging: 1%, down from 3%

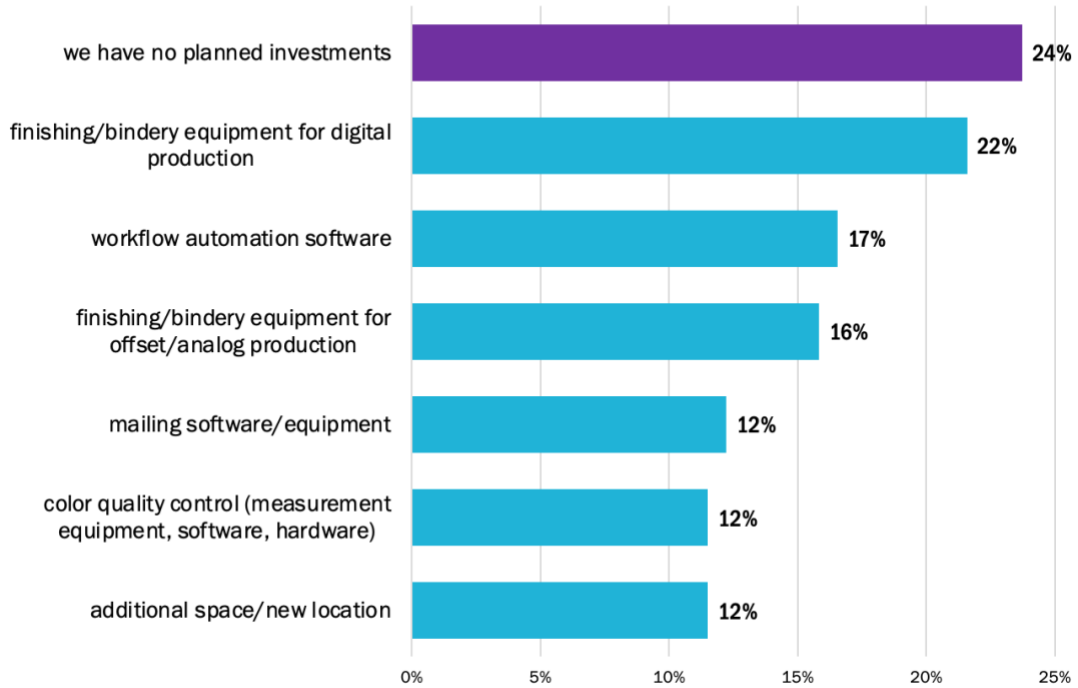
Cary Sherburne might be interested in some textile-related planned investments:

- transfer-based dye-sublimation printer (like Epson, Roland, Mimaki): 2%, down one point
- direct-to-textile dye-sublimation printer (like Kornit):: 1%, down from 4%
- direct-to-garment printer (like Ricoh/Anajet, Epson): 2%, down one point
- direct-to-film printer (like Mimaki, Epson): 2% (new to this year’s survey)

We have been seeing wide-format printing equipment start to cool, a trend which has continued:

- wide-format color printer (24 in.+)-solvent/eco-solvent (like Epson, Roland): 1%, down from 4%
- wide-format color printer (24 in.+)-latex rollfed or flatbed (like HP Latex, Epson Resin): 4%, unchanged
- wide-format color printer (24 in.+)-flatbed UV (like EFI VUTEk, Canon Arizona): 4%, down from 8%

### Top 5 Planned Investments



N=139

The full Planned Investments table is at the end of this section.

Let’s see who is specifically buying what:

	1-9 employees	10-19 employees	20-49 employees	50+ employees
additional space/new location	3%	17%	6%	20%
color quality control (measurement equipment, software, hardware)	3%	11%	23%	10%
offset prepress equipment (like CTP)	0%	0%	6%	6%
finishing/bindery equipment for offset/analog production	6%	11%	23%	20%
finishing/bindery equipment for digital production	17%	22%	17%	27%
cutting table for wide-format finishing	9%	11%	6%	4%
other finishing equipment for wide-format	3%	6%	9%	4%
laser cutting/etching equipment	3%	6%	0%	2%
mailing software/equipment	9%	11%	14%	14%
toner-based color digital press (like HP Indigo, Xerox iGen)	11%	11%	17%	6%
high-speed production inkjet printing equipment—rollfed (like	0%	11%	3%	4%

	1-9 employees	10-19 employees	20-49 employees	50+ employees
HP PageWide, Canon ProStream)				
high-speed production inkjet printing equipment—cutsheet-B1 size (like Landa Nanography S10, Komori Impremia)	3%	0%	0%	4%
high-speed production inkjet printing equipment—cutsheet-B2 size (like Fujifilm JPress, Konica Minolta AccurioJet)	3%	0%	6%	10%
high-speed production inkjet printing equipment—cutsheet-B3 size (like Canon varioPRINT, Xerox Baltoro)	3%	0%	3%	4%
high-speed production inkjet printing equipment for packaging	0%	0%	3%	2%
high-speed production inkjet printing equipment for industrial printing	0%	0%	0%	4%
high-speed production inkjet printing equipment—other, please specify _____	3%	0%	0%	2%
analog/flexo label-printing equipment	0%	0%	3%	2%
digital label printing equipment	6%	6%	14%	10%
sheetfed offset press	0%	0%	6%	6%
web offset press	0%	0%	0%	2%
rebuilding our web offset press	3%	0%	0%	2%
COVID safety materials/equipment (like dividers, distancing graphics, PPE)	0%	0%	0%	0%
wide-format color printer (24 in.+)-solvent/eco-solvent (like Epson, Roland)	0%	6%	3%	0%
wide-format color printer (24 in.+)-latex rollfed or flatbed (like HP Latex, Epson Resin)	0%	11%	0%	6%
wide-format color printer (24 in.+)-flatbed UV (like EFI VUTEK, Canon Arizona)	0%	0%	9%	4%
CNC routers and/or other signmaking equipment	3%	0%	3%	4%
transfer-based dye-sublimation printer (like Epson, Roland, Mimaki)	3%	0%	3%	2%
direct-to-textile dye sublimation printer (like Kornit)	0%	0%	3%	0%
direct-to-garment printer (like Ricoh/Anajet, Epson)	3%	6%	3%	0%
direct-to-film printer (like Mimaki, Epson)	0%	6%	6%	0%
packaging press/printer-corrugated	0%	0%	0%	0%
packaging press/printer-folding carton	0%	0%	11%	4%

	1-9 employees	10-19 employees	20-49 employees	50+ employees
packaging press/printer-flexible packaging	0%	0%	0%	2%
3D printer	0%	0%	0%	2%
prepress RIP for our wide-format printers	0%	0%	0%	0%
prepress RIP for other devices	3%	0%	3%	0%
Management Information System (MIS)	0%	11%	11%	14%
Customer Relations Management (CRM) system	3%	6%	9%	8%
workflow automation software	3%	6%	17%	29%
Web-to-print software	6%	11%	6%	14%
business intelligence software	0%	0%	0%	6%
marketing automation software	6%	6%	6%	8%
we have no planned investments	43%	22%	20%	14%
Other (please specify)	14%	0%	9%	4%

1-9 employees: The top response is “we have no planned investments” (43%, way up from 28%). The top investment item is “finishing/bindery equipment for digital production” (17%, up from 13), “other” (14%, which includes “ESG” and “more qualified personnel”) and “toner-based color digital press (like HP Indigo, Xerox iGen)” (11%, up one percentage point).

10-19 employees: Twenty-two percent selected “we have no planned investments,” up from 16%. The most popular investment category is “finishing/bindery equipment for digital production” (22%, down one point). “Other” was selected by 17%, which included “sales CRM.” Number three is a nine-way tie at 11% among “toner-based color digital press (like HP Indigo, Xerox iGen)” (down from 16%), “cutting table for wide-format finishing” (up from 6%), “mailing software/equipment” (down from 23%), “finishing/bindery equipment for offset/analog production” (down from 10%), “digital label printing equipment” (up from 6%), “Web-to-print software” (up from 3%), “marketing automation software” (up from 3%), “additional space/new location” (down from 23%), and “color quality control (measurement equipment, software, hardware)” (new this survey).

20-49 employees: Only 20% said “we have no planned investments” (up from 10%, but it was third on the list). The top investment items are “finishing/bindery equipment for offset/analog production” (23%, up from 19%) and “Web-to-print software” (23%, up from 7%). A three-way tie at 17% includes “finishing/bindery equipment for digital production” (down slightly from 19%), “toner-based color digital press (like HP Indigo, Xerox iGen)” (up from 12%), and—surprisingly—“rebuilding our web offset press” (up from 5%).

50+ employees: Their top investment items are “rebuilding our web offset press” (29%, up from 6%), “finishing/bindery equipment for digital production” (27%, up from 21%), and “finishing/bindery equipment for offset/analog production” (20%, down from 24%). Only 14% said “we have no planned investments.”

### Looking Forward

In 2021, the pandemic-induced hunkering down was over, and last year saw print businesses actively pursuing new capabilities or expanding their capacity, mostly in digital printing and finishing. Mid-size and large businesses had also been looking to expand their locations to house these new capabilities. This year, print businesses are slowing their capital expenditures in 2024, but spending still looks robust. What they will be focusing on is automation, whether it be software or equipment with more automated features. We were surprised to see “rebuilding our web offset press” as a top item in some of the size categories—one way to expand capabilities and add automation without having to make a major investment is retool the equipment you may already have. There are some vendors—like

Baldwin Technology—that specialize in helping print businesses refit their older equipment to get more capabilities out of it, which can be a more economical option.

### Full Table of Business Challenges

	All Responses
increasing plant productivity	44%
national economic conditions	41%
finding qualified production personnel	39%
competition from other print providers	35%
pricing	34%
managing workflow automation	32%
capabilities of sales personnel	29%
consumables and supplies prices	29%
finding qualified sales personnel	25%
capabilities of production personnel	24%
local economic conditions	22%
need for employee training	20%
keeping up with technological changes	20%
increasing employee benefit costs	20%
diversifying print product/application offerings	18%
financing costs of our equipment	18%
retirement of key production personnel	17%
owner/management retirement	16%
finding business(es) to acquire	15%
loss of print business to digital media	14%
understanding/implementing artificial intelligence (AI)	14%
profitably handling shorter runs	13%
understanding the needs of today's communications buyers	12%
availability of consumables and supplies	11%
finding capital for investments	10%
selling our business	10%
regaining business lost due to COVID	9%
job tracking	9%
print MIS implementation	9%
adding/updating web-to-print/online storefront	8%
deciding whether to keep or discard our offset equipment	7%
transitioning jobs from offset to high-speed digital printing equipment	7%
adding wide-format equipment/services	6%
adding packaging printing equipment/services	6%
making our facility/business more environmentally sustainable	5%

	All Responses
competing against digital media agencies	5%
Other	5%
training employees to use cloud applications	3%
adding non-print media capabilities (web design, app development, social media management, etc.)	3%
keeping my employees safe from COVID	2%
migrating business functions to the cloud	2%
migrating customer service and sales to the cloud	1%
getting web-to-print to work on smartphones and other mobile devices	1%
adding 3D printing equipment/services	1%
adding interactive print elements to print products (QR codes, augmented reality [AR])	1%
migrating production to the cloud	0%

### Full Table of New Business Opportunities

	All Responses
improving economic conditions	30%
customers outsourcing more work to us	28%
hiring new salespeople	26%
diversifying print product/application offerings	25%
helping customers integrate print and non-print marketing campaigns	22%
partnering with other print providers	20%
automating production	19%
acquiring another company	18%
customized, personalized, or variable-data printing jobs	13%
broadening fulfillment, shipping, mailing capabilities	13%
increasing sales through print brokers	12%
broadening bindery/finishing equipment/services	12%
print MIS implementation	10%
adding toner-based digital printing equipment (like HP Indigo, Xerox iGen)	9%
adding high-speed production inkjet printing equipment (like HP PageWide, Canon ProStream)	9%
adding packaging printing capabilities	9%
replacing toner-based digital equipment with production inkjet	8%
Other (please specify)	8%
using marketing automation for our business (like HubSpot, Eloqua, Marketo)	8%
adding wide-format printing capabilities	8%
implementing artificial intelligence (AI)	8%
selling our company	8%

	All Responses
offering interactive print technologies to customers (like QR codes, augmented reality)	7%
adding web-to-print/online storefront	7%
disposing of offset equipment to concentrate on digital printing	6%
selling marketing automation services to our customers	6%
adding additional offset printing equipment	6%
offering electronic/non-print services for customers (web design, app development, social media management, etc.)	4%
adding digital label/wrapper printing capabilities	4%
adding specialty or industrial printing capabilities	3%
adding interactive print elements to print products (QR codes, augmented reality [AR])	3%
helping clients get their websites to work on mobile devices	3%
adding "digital enhancement" finishing technologies (like Scodix, Highcon, MGI)	3%
adding textile/fabric printing for soft signage	3%
adding textile/fabric printing for décor/furnishings	3%
adding vehicle graphics/wrapping capabilities	2%
adding traditional signage fabrication/construction capabilities	2%
sign installation	2%
getting more customers using smartphones and other mobile devices	2%
training employees to use cloud applications	2%
migrating production to the cloud	1%
migrating business functions to the cloud	1%
becoming part of a print or sign franchise (like Alphagraphics, FASTSIGNS)	1%
video production services	1%
adding textile/fabric printing for apparel	1%
adding dynamic digital signage (DDS) capabilities	1%
migrating customer service and sales to the cloud	1%
adding 3D printing capabilities	0%

### Full Table of Planned Investments

	All Responses
we have no planned investments	24%
finishing/bindery equipment for digital production	22%
workflow automation software	17%
finishing/bindery equipment for offset/analog production	16%
mailing software/equipment	12%
additional space/new location	12%
color quality control (measurement equipment, software, hardware)	12%

	All Responses
toner-based color digital press (like HP Indigo, Xerox iGen)	11%
digital label printing equipment	9%
Management Information System (MIS)	9%
Web-to-print software	9%
Other (please specify)	7%
cutting table for wide-format finishing	6%
Customer Relations Management (CRM) system	6%
marketing automation software	6%
high-speed production inkjet printing equipment—cutsheet-B2 size (like Fujifilm JPress, Konica Minolta AccurioJet)	6%
other finishing equipment for wide-format	5%
packaging press/printer—folding carton	4%
offset prepress equipment (like CTP)	4%
high-speed production inkjet printing equipment—rollfed (like HP PageWide, Canon ProStream)	4%
sheetfed offset press	4%
wide-format color printer (24 in.+)-latex rollfed or flatbed (like HP Latex, Epson Resin)	4%
wide-format color printer (24 in.+)-flatbed UV (like EFI VUTEk, Canon Arizona)	4%
high-speed production inkjet printing equipment—cutsheet-B3 size (like Canon varioPRINT, Xerox Baltoro)	3%
CNC routers and/or other signmaking equipment	3%
laser cutting/etching equipment	2%
high-speed production inkjet printing equipment—cutsheet-B1 size (like Landa Nanography S10, Komori Impremia)	2%
transfer-based dye-sublimation printer (like Epson, Roland, Mimaki)	2%
direct-to-garment printer (like Ricoh/Anajet, Epson)	2%
direct-to-film printer (like Mimaki, Epson)	2%
business intelligence software	2%
high-speed production inkjet printing equipment for packaging	1%
high-speed production inkjet printing equipment for industrial printing	1%
high-speed production inkjet printing equipment—other, please specify _____	1%
analog/flexo label-printing equipment	1%
rebuilding our web offset press	1%
wide-format color printer (24 in.+)-solvent/eco-solvent (like Epson, Roland)	1%
prepress RIP for other devices	1%
web offset press	1%
direct-to-textile dye sublimation printer (like Kornit)	1%
packaging press/printer—flexible packaging	1%
3D printer	1%

	All Responses
COVID safety materials/equipment (like dividers, distancing graphics, PPE)	0%
packaging press/printer -corrugated	0%
prepress RIP for our wide-format printers	0%

### 3. NEW PRODUCTS AND SERVICES

Every few surveys, we try to gauge the extent to which print service providers are branching out into new product and service areas, if they had already added those new products/services, and, if not, if they had a time frame for adding them—or if they were even on their radars at all. We last asked this question in 2019.

For the following product areas...

- high-speed production inkjet (like HP PageWide, Canon Océ ProStream)
- wide-format printing (like signs, displays, banners)
- textile/fabric printing for soft signage
- textile/fabric printing for garment printing/decorating
- direct-to-garment printing
- interior decor printing (wall coverings, pillows, etc.)
- specialty or industrial printing (like coffee mugs, golf balls, smartphone cases)
- corrugated packaging printing
- folding carton printing/converting
- flexible packaging printing/converting
- 3D printing
- printed electronics

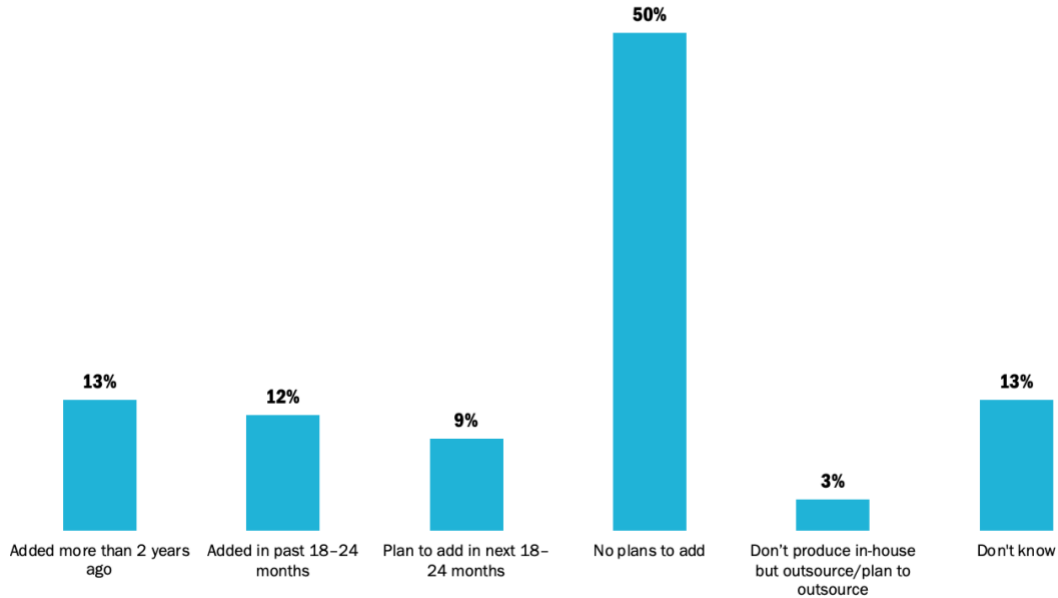
...we asked if they...

- added it more than 2 years ago
- added it in the past 18–24 months
- plan to add it in the next 18–24 months
- have no plans to add it
- don't produce it in-house but outsource/plan to outsource it
- don't know

## High-Speed Production Inkjet

When it comes to high-speed production inkjet, 25% of our response base already added it, and a further 9% say they plan to add production inkjet in the next year or two. Three percent plan to outsource it, if they don't already. One-half say they have no plans to add production inkjet capabilities.

### Have You Added, or Do You Plan to Add High-Speed Production Inkjet (like HP PageWide, Canon Océ ProStream)?



## WhatTheyTh!nk

N=138

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	10%	12%	15%	15%
Added in past 18-24 months	6%	12%	6%	19%
Plan to add in next 18-24 months	3%	18%	6%	13%
No plans to add	48%	47%	53%	50%
Don't produce in-house but outsource/plan to outsource	3%	6%	3%	2%
Don't know	29%	6%	18%	2%

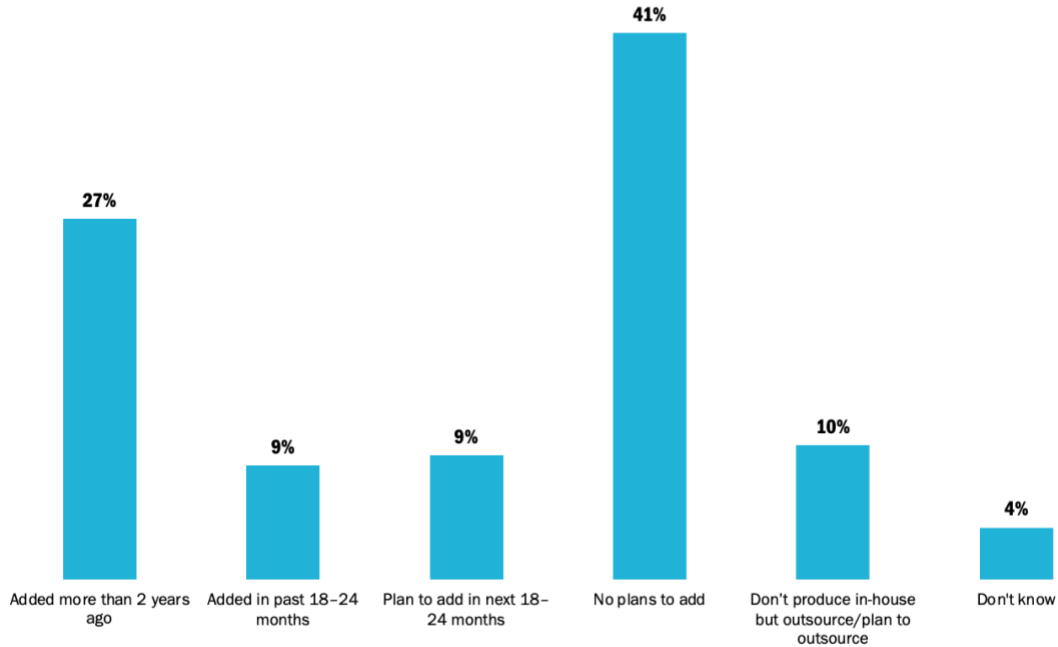
As the product portfolios have expanded, there is an inkjet solution available for virtually every demographic, which is why so much of the industry—except perhaps for the smallest of companies—are all on basically the same page. Of note is the 29% of 1-9-employee establishments that “don't know”—production inkjet has hit critical mass, but it hasn't hit all mass yet.<sup>13</sup>

<sup>13</sup> This question also suffered from our low response rate.

## Wide-Format Printing

When it comes to wide-format printing capabilities, 36% have already added them, with a further 9% planning to add it in the next year or two. Ten percent plan to outsource it, if they don't already. Four out of 10 have no plans to add wide-format capabilities. As has been the case for the past couple of years, anyone who planned to move into wide-format has already done so. There may be a few stragglers, but the big shift to wide-format is generally over—although some of the print franchises are still expanding into signage and display graphics.

### Have You Added, or Do You Plan to Add Wide-Format Printing (like Signs, Displays, Banners)



**WhatTheyTh!nk**

N=138

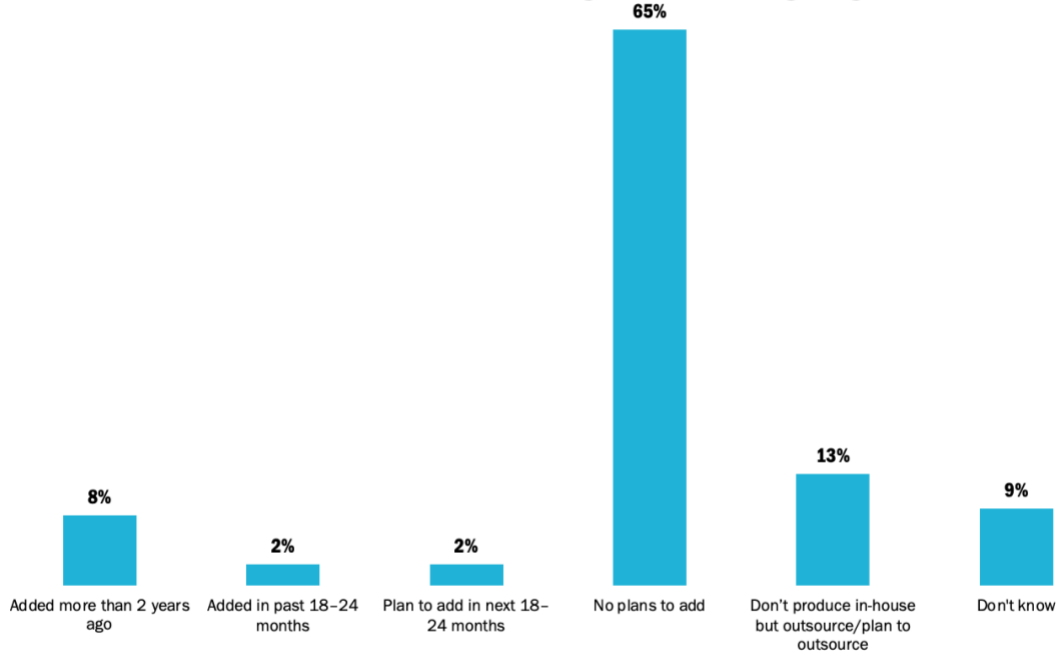
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	26%	35%	31%	22%
Added in past 18-24 months	6%	12%	9%	8%
Plan to add in next 18-24 months	3%	12%	3%	16%
No plans to add	39%	18%	47%	47%
Don't produce in-house but outsource/plan to outsource	19%	18%	9%	2%
Don't know	6%	6%	0%	4%

10-19-employee shops are the least likely to say they have no plans to add (only 18%)—the rest are in the 39-47% range.

## Textile Printing for Soft Signage

Textile printing is not for everyone, but in terms of soft signage, only 10% of respondents have already added it—which is virtually unchanged from 2019) with 2% planning to add it in the next year or two. Interestingly, 13% plan to outsource it. (Remember how “partnering with other print providers” was a high-ish sales opportunity? Here’s where that plays in.) Still, two-thirds (65%) have no plans to add textile printing for soft signage.<sup>14</sup> The “no plans to add” folks may change their minds as the technology gets easier to work with—and they start losing work of their competitors who offer it.

### Have You Added, or Do You Plan to Add Textile/Fabric Printing for Soft Signage



## WhatTheyTh!nk

N=138

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	10%	6%	6%	9%
Added in past 18-24 months	0%	6%	3%	2%
Plan to add in next 18-24 months	3%	6%	3%	0%
No plans to add	60%	44%	65%	76%
Don't produce in-house but outsource/plan to outsource	17%	25%	16%	4%
Don't know	10%	13%	6%	9%

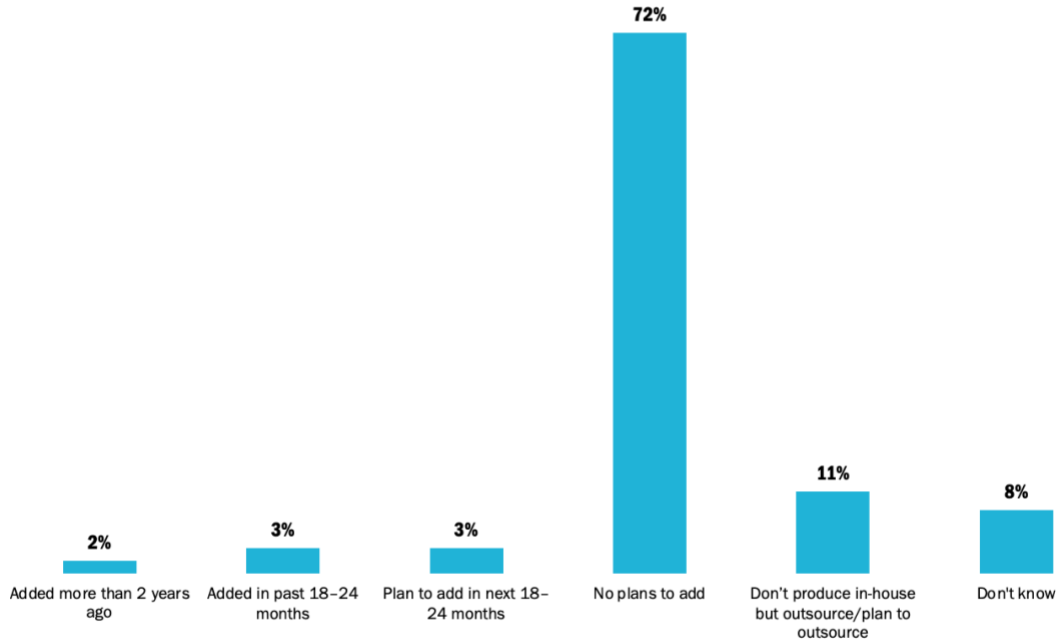
There are some pockets of interest in soft signage, mostly at the smaller end of the industry—but the lack of tremendous interest has been pretty consistent for the past 10- years so we’re inclined to think that the industry is pretty meh on soft signage.

<sup>14</sup> Just on a housekeeping note, respondents were only allowed to select one of these responses, so there is no overlap between “no plans to add” and “plan to outsource.”

### Textile/Fabric Printing for Garment Printing/Decorating

If soft signage was of little interest then textile printing for garment decoration is of even less interest. Only 5% of respondents have already added it, and only 3% plan to add it (again, virtually unchanged from 2019). And 11% plan to outsource it if they don't already (down from 23% in 2019). Nearly three-fourths (72%) have no plans to add it. The “no plans to add” folks are probably less likely to change their minds about garment printing than soft signage.

### Have You Added, or Do You Plan to Add Textile/Fabric Printing for Garment Printing/Decorating



N=138

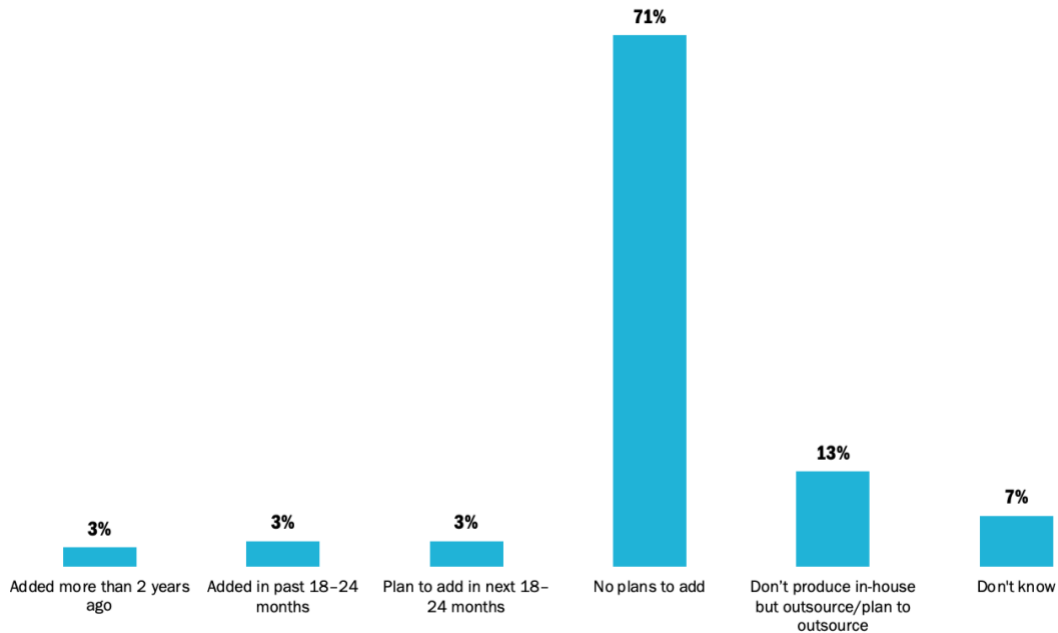
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	3%	0%	3%	0%
Added in past 18-24 months	0%	20%	3%	0%
Plan to add in next 18-24 months	10%	0%	0%	2%
No plans to add	63%	47%	70%	89%
Don't produce in-house but outsource/plan to outsource	13%	20%	13%	5%
Don't know	10%	13%	10%	5%

There is some interest among small and mid-size printers in adding garment/fabric printing, even if only on an outsourced basis, but the biggest shops seem pretty meh about it.

## Direct-to-Garment Printing

Direct-to-garment (DTG) printing is a different beast than garment printing/decorating. The latter typically refers to printing on raw fabric which is then cut and sewn into an actual garment. DTG, on the other hand, involves printing onto pre-made apparel, such as T-shirts, shorts, caps, and even related items like tote bags. It is (usually) an inkjet technology, not dye-sublimation, and inexpensive units from Ricoh (Anajet), Epson, and Roland, among others, are easy to set up and use. Over the past two years, the catch-all category DTG has included direct-to-film (DTF), which is a different kind of transfer technology for printing on garments and other materials. That said, only 6% of respondents have already added DTG printing (down one point from 2019), and only 3% plan to add it. Thirteen percent plan to outsource it if they don't already. Still, 71% have no plans to add it.

### Have You Added, or Do You Plan to Add Direct-to-Garment Printing



**WhatTheyTh!nk**

N=138

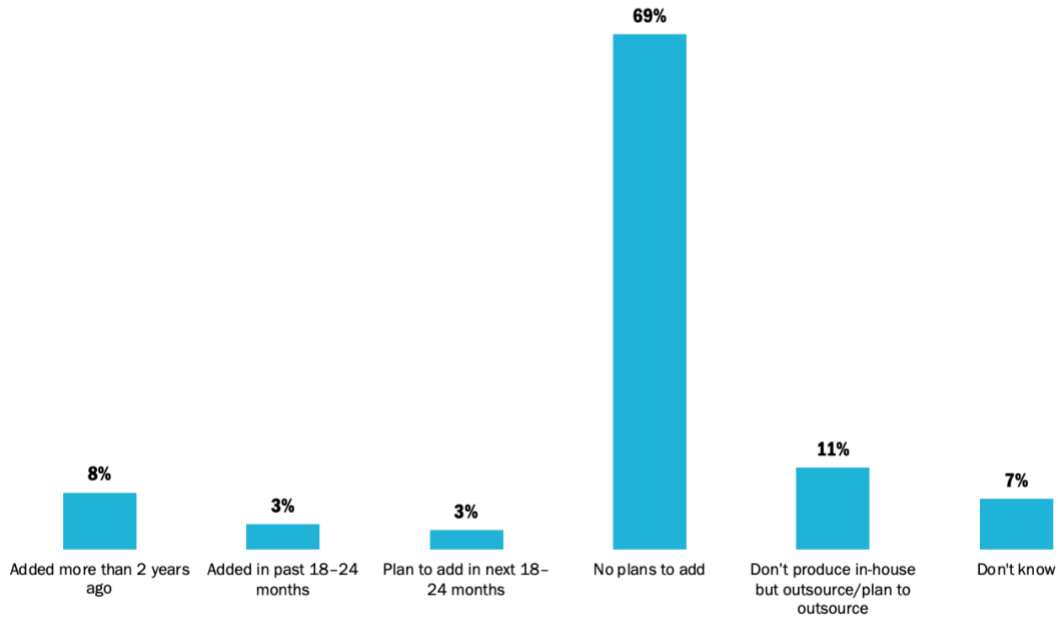
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	3%	7%	3%	0%
Added in past 18-24 months	0%	14%	0%	5%
Plan to add in next 18-24 months	3%	0%	3%	5%
No plans to add	73%	50%	67%	80%
Don't produce in-house but outsource/plan to outsource	13%	29%	17%	5%
Don't know	7%	0%	10%	7%

DTG printing finds its greatest favor (to the extent that it finds any favor) among smaller shops who can easily set up a T-shirt printing business. DTG is also popular in inplants, especially those in education, who can produce college swag for students, alumni, and parents.

## Décor Printing

A category we added to this survey is décor printing—wall coverings, pillows, carpeting, and other such materials. The technology for printing these kinds of materials has existed for more than a decade, but it is only in the past five years or so that equipment manufacturers have found customers eagerly pursuing these kinds of applications. As a category, it is where wide format/display graphics and textile printing meet. As it happens, 11% of respondents have already added décor printing capabilities and only 3% plan to add it. Another 11% plan to outsource it if they don't already. And just over two-thirds (69%) have no plans to add décor printing capabilities. For now.

### Have You Added, or Do You Plan to Add Interior Décor Printing (Wall Coverings, Pillows, Etc.)



## WhatTheyThink

N=138

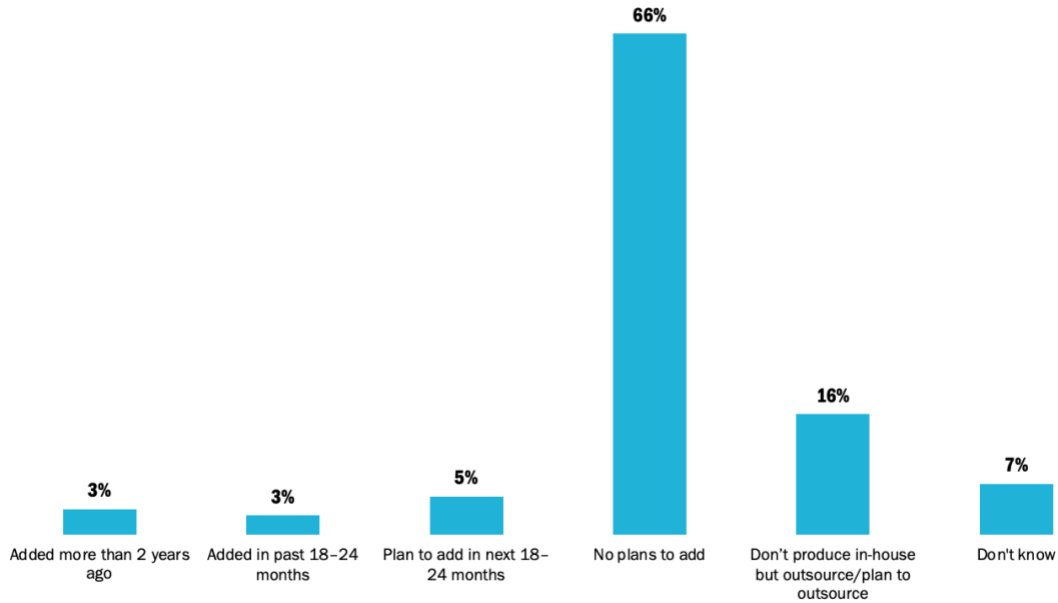
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	7%	0%	10%	9%
Added in past 18-24 months	0%	0%	0%	9%
Plan to add in next 18-24 months	3%	7%	3%	0%
No plans to add	66%	47%	72%	76%
Don't produce in-house but outsource/plan to outsource	14%	33%	7%	4%
Don't know	10%	13%	7%	2%

Smaller shops are the most likely to see this kind of printing as outsourceable, while larger shops are more likely to have added it already.

## Specialty Printing

By specialty printing, we mean printing on three-dimensional items like coffee mugs, golf balls, smartphone cases, etc. UV inkjet devices<sup>15</sup> from the likes of Mimaki, Roland, and LogoJet have made this kind of printing just about as easy as DTG printing, and these are in-demand items used for marketing and promotion. Still, only 6% (down from 8% in 2019) of respondents have already added specialty printing, and 5% plan to add it. Sixteen percent plan to outsource it if they don't already. (These items—also known as ad specialties—are often bought in bulk by end customers from distributors who have long specialized in these items. Digital direct-to-item printing may be seen as a disruptive technology to this long-entrenched market.) At any rate, two-thirds have no plans to add specialty printing capabilities.

### Have You Added, or Do You Plan to Add Specialty or Industrial Printing (Like Coffee Mugs, Golf Balls, Smartphone Cases)



## WhatTheyTh!nk

N=138

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	3%	7%	3%	2%
Added in past 18-24 months	0%	7%	0%	5%
Plan to add in next 18-24 months	10%	0%	7%	2%
No plans to add	67%	40%	63%	77%
Don't produce in-house but outsource/plan to outsource	10%	47%	17%	9%
Don't know	10%	0%	10%	5%

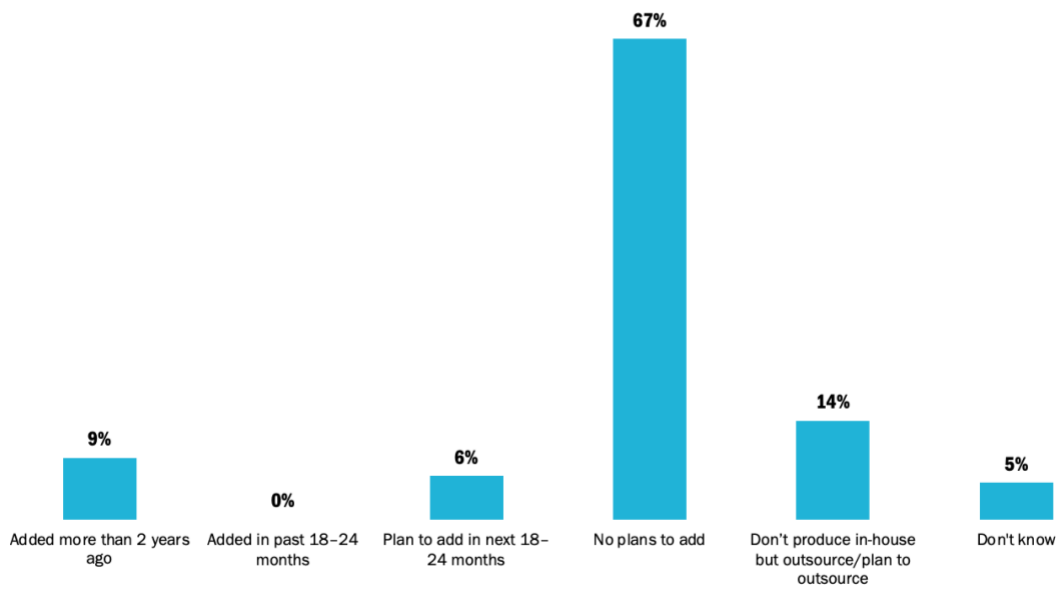
Inplants are a good market for these kinds of applications, especially those in education who can produce college swag for students, alumni, and parents.

<sup>15</sup> Dye-sublimation is also a popular technology for this kind of printing.

## Corrugated Packaging Printing

Packaging has been a much-ballyhooed print application—digital (and hybrid digital/flexo) technologies are helping packaging printers and converters keep pace with trends in packaging production (short runs, more customization/personalization, etc.). Packaging is seen as a great growth application for printers—although not necessarily by printers—recall that 9% of our survey respondents saw “adding packaging printing capabilities” as a business opportunity. Corrugated in particular is receiving a great deal of attention, and 9% of respondents have already added corrugated packaging printing (about the same as in 2019), although 6% plan to add it. Fourteen plan to outsource it if they don’t already. Two-thirds have no plans to add corrugated packaging capabilities.

### Have You Added, or Do You Plan to Add Corrugated Packaging Printing



## WhatTheyTh!nk

N=138

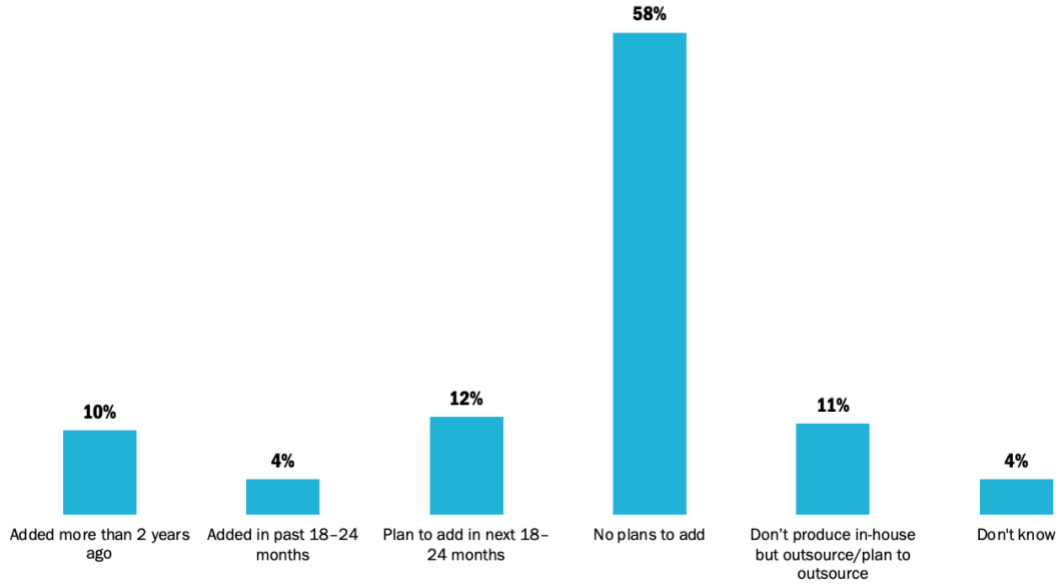
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	0%	7%	14%	11%
Added in past 18-24 months	0%	0%	0%	0%
Plan to add in next 18-24 months	4%	0%	0%	13%
No plans to add	71%	53%	71%	65%
Don't produce in-house but outsource/plan to outsource	14%	27%	11%	11%
Don't know	11%	13%	4%	0%

This tends to be something more likely to appeal to larger shops, although it bears mentioning that corrugated doesn’t necessarily have to be solely for packaging; there is a lot of overlap with retail POP/POS graphics as well.

### Folding Carton Printing/Converting

Of slightly more appeal than corrugated is folding carton printing—14% (up from 9% in 2019) have already added folding carton printing/converting, and 12% plan to add it (2% said this in 2019). Eleven percent plan to outsource it if they don't already. Nearly six out of 10 (58%) have no plans to add folding carton printing/converting capabilities—unchanged from 2019.

### Have You Added, or Do You Plan to Add Folding Carton Printing/Converting



### WhatTheyTh!nk

N=138

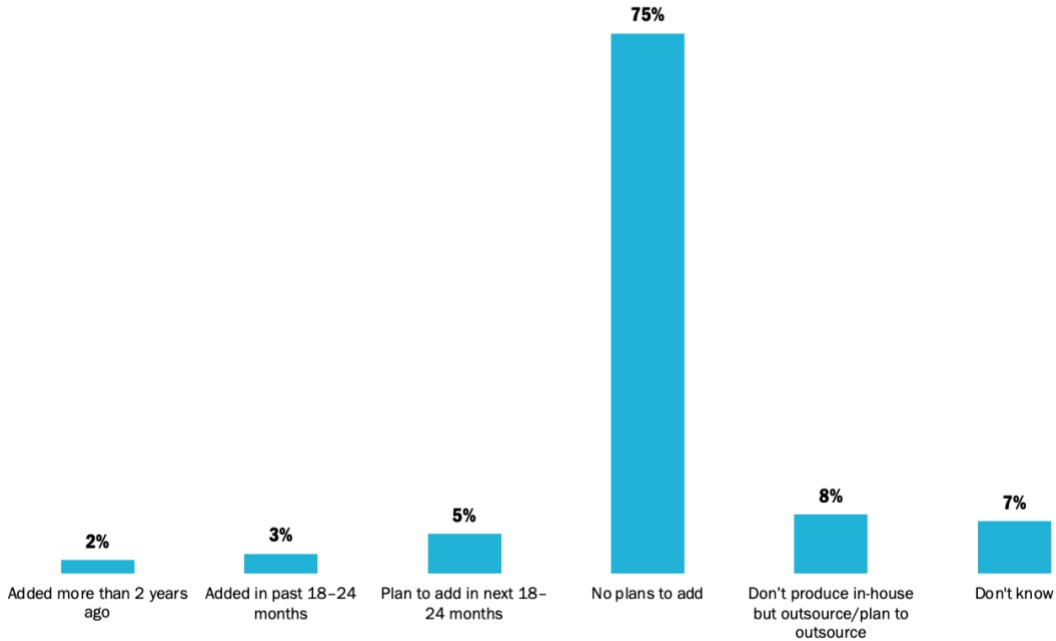
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	4%	7%	14%	13%
Added in past 18-24 months	0%	0%	7%	6%
Plan to add in next 18-24 months	0%	7%	14%	19%
No plans to add	75%	57%	50%	54%
Don't produce in-house but outsource/plan to outsource	11%	29%	11%	6%
Don't know	11%	0%	4%	2%

Almost one-third of 10-19-employee shops say they outsource or plan to outsource folding carton printing, and 19% of 50+-employee establishments plan to add folding carton printing in the next 18-24 months. With the advent of ecommerce and small boutique/craft product manufacturers/sellers, there is a greater and greater need for printed boxes in smaller and smaller runs. There is a great opportunity for shops that can serve these often small, local merchants.

### Flexible Packaging Printing/Converting

Flexible packaging hasn't been quite as touted as corrugated or folding carton, but new digital technologies are also transforming flexible packaging, creating new opportunities. Still, it appears to be the least popular of the three packaging categories. Only 5% of respondents have already added flexible packaging printing/converting capabilities, and 5% plan to add it. Eight percent plan to outsource it if they don't already and three-fourths no plans to add flexible packaging printing/converting capabilities.

### Have You Added, or Do You Plan to Add Flexible Packaging Printing/Converting



N=138

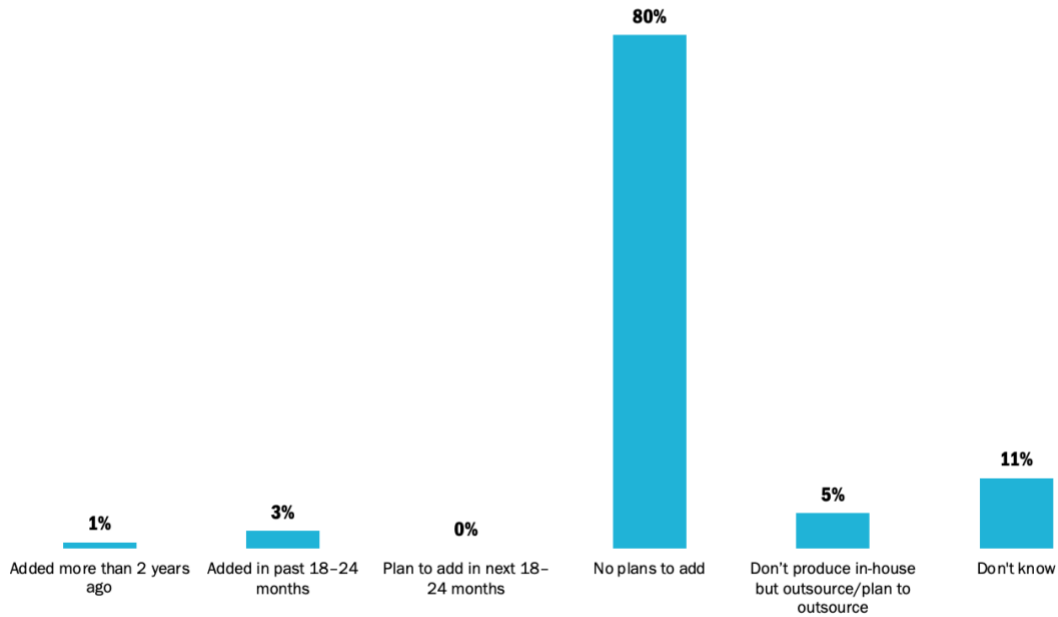
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	0%	0%	7%	0%
Added in past 18-24 months	0%	0%	4%	5%
Plan to add in next 18-24 months	0%	7%	4%	10%
No plans to add	79%	60%	74%	78%
Don't produce in-house but outsource/plan to outsource	7%	33%	4%	2%
Don't know	14%	0%	7%	5%

This is an area where our low response rate has resulted in some less-than-rigorous cross-tabulations, but this type of printing is more the purview of larger shops.

### 3D Printing

We didn't expect to see a lot of interest in these last two items (3D printing and printed electronics), and we didn't—nor have we in the past. There are more opportunities for general commercial printers in 3D printing than printed electronics—especially in retail display, as many of Massivit's customers are doing to complement 2D wide-format display graphics. Mimaki had launched some entry-level and mid-range 3D printing units just prior to the pandemic, but they have been pretty quiet on the 3D printing front since. Still, 4% of respondents have added 3D printing, although no one plans to add it. Five percent plan to outsource it if they don't already, but a full 80% have no plans to add 3D printing.

### Have You Added, or Do You Plan to Add 3D Printing



## WhatTheyTh!nk

N=138

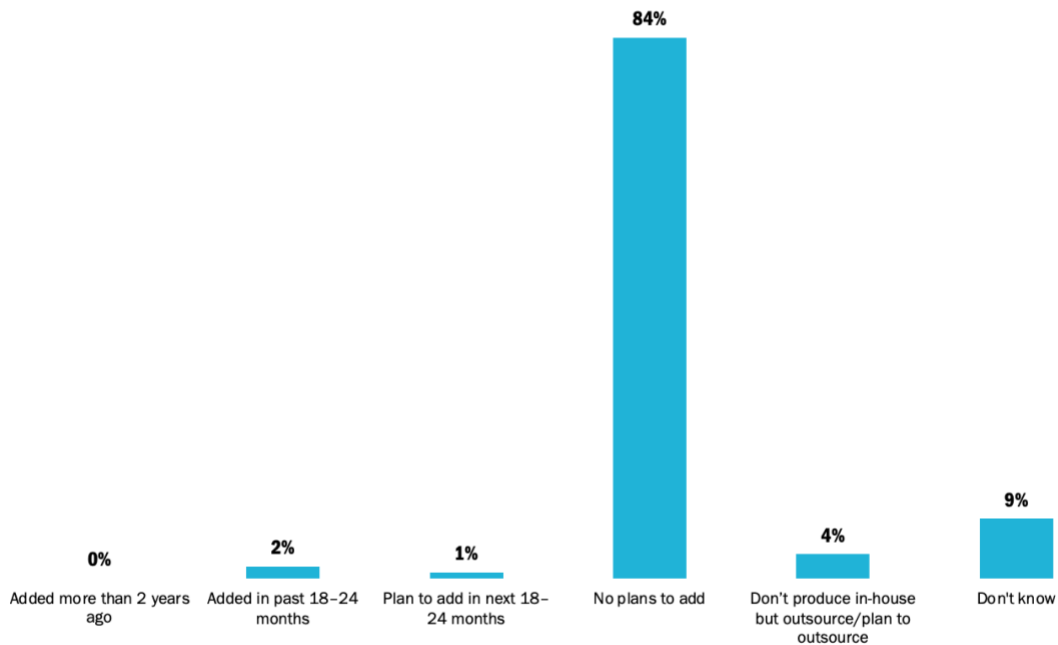
	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	0%	0%	0%	2%
Added in past 18-24 months	4%	7%	0%	2%
Plan to add in next 18-24 months	0%	0%	0%	0%
No plans to add	75%	67%	88%	83%
Don't produce in-house but outsource/plan to outsource	11%	13%	4%	0%
Don't know	11%	13%	8%	12%

There is some slight interest among smaller shops, but 3D printing is still pretty meh across the board.

## Printed Electronics

Finally, printed electronics has also been touted as a good opportunity for printers (remember when everyone was going to be raking it in by printing RFID chips?) but it requires a degree of engineering and technical skill far beyond ink on paper. Some printing companies have managed to successfully branch into printed electronics (usually by creating a separate business as a greenfield project rather than squeezing in new equipment next to the offset or digital press<sup>16</sup>), but for rank-and-file commercial printers, it requires more time and due diligence than they may have. That’s likely why only 2% of our respondents has added printed electronics capabilities, and 1% say they plan to add it. Four percent plan to outsource it if they don’t already, but a good 84% have no plans to add printed electronics. We could be wrong, but we doubt that printed electronics is going to be the big growth area for the industry.

### Have You Added, or Do You Plan to Add Printed Electronics



N=138

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Added more than 2 years ago	0%	0%	0%	0%
Added in past 18-24 months	0%	0%	0%	5%
Plan to add in next 18-24 months	0%	0%	4%	0%
No plans to add	77%	87%	84%	88%
Don't produce in-house but outsource/plan to outsource	4%	13%	4%	0%
Don't know	19%	0%	8%	7%

<sup>16</sup> Toppan, for example, is always sending press releases about these kinds of projects.

## Looking Forward

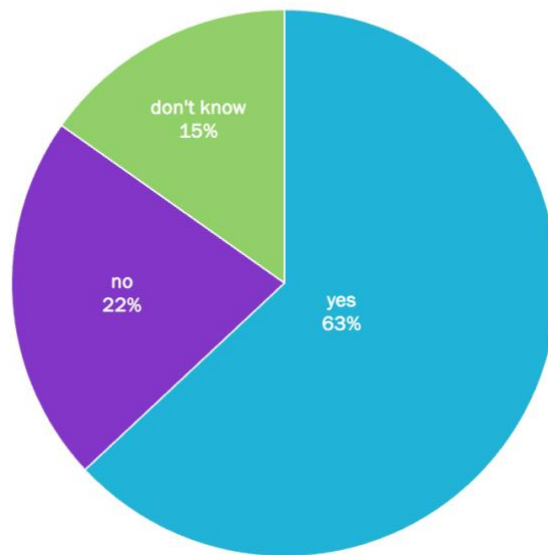
So where do print businesses see their growth areas? Production inkjet and folding carton printing (and the two are not mutually exclusive) appear to be the areas in which printers look to be expanding. Display graphics had been the hot application area 10 years ago, but everyone who was ever likely to get into display graphics has already done so. Textile and other specialty printing—especially décor—have been touted as hot growth areas, but they have not turned up in our survey data, or at least not yet.

## 4. HIRING PLANS

One of the most discussed topics of the past couple of years was that of staffing and the problems that print businesses have been having in attracting employees. Finding qualified employees has been one of the perennial business challenges in recent years, and our recent surveys—including the current one—have confirmed this. For decades, print business owners complained about not being able to find decent sales people—or at least those with good books of business—but now finding production people has become a major challenge, or so we hear anecdotally (we’ll see what the survey says in a moment). The pandemic has only accelerated this trend, and as we have reported recently, a lot of print businesses have given up and are instead relying on automation (hardware and/or software) to take the place of physical human bodies. But there is only so much that can be automated.

Indeed, in the current survey, we find that just under two-thirds (63%) have plans to hire staff in the next 12 months—unchanged from last year, but down from 71% in 2021’s survey—with 22% (up slightly from 20%) saying they are not planning to hire. A large-ish cohort (15%, down slightly from 17%) “don’t know,” which could mean, “we’d sure like to, but it may not be possible.”

### Are You Considering Hiring/Adding Staff in the Next 12 Months?



N=138

Plans to hire increase with shop size—with 10–19-employee shops the most likely to respond “don’t know.”

	1–9 employees	10–19 employees	20–49 employees	50+ employees
yes	37%	61%	74%	74%
no	43%	11%	14%	16%
don't know	20%	28%	11%	10%

### Specific Positions

This year, we see another shift in whom shops are looking for. Two years ago, it had been production staff. Last year, it was sales reps. Now, it's production personnel again.

Two years ago, “postpress/bindery/finishing” staff had been the most sought-after employees (selected by 47% of hiring businesses), and last year they had dropped down to number four at 25%. This year, they are back on top at 44%. Someone’s got to run all that bindery equipment they say they are planning on buying.

Likewise, our number two most-sought position two years ago had been “press operator” at 43%. Last year, it dropped to 26%, and this year it is back up to 42%.

Last year’s top potential hires were sales reps, but they have dropped to the third and fourth spots—“outside sales representative” are at 39% (up from 34%) and “inside sales representative” is at 33% (up from 29%).

Rounding out the top five is “production management” at 19%, up one point from 18%.

### If Yes, For What Positions Are You Looking to Hire?



N=103

Different size establishments have different hiring/staff needs:

	1-9 employees	10-19 employees	20-49 employees	50+ employees
executive management	5%	7%	7%	29%
inside sales representative	26%	43%	46%	24%
outside sales representative	21%	21%	43%	50%
marketing and market communications	0%	14%	11%	19%
prepress	5%	7%	4%	21%

	1-9 employees	10-19 employees	20-49 employees	50+ employees
production management	11%	21%	7%	31%
press operator (offset or digital)	26%	14%	46%	55%
postpress/bindery/finishing	21%	36%	54%	50%
color management expert	0%	0%	0%	0%
IT management	0%	0%	7%	10%
IT/software programming	5%	0%	7%	17%
graphic designer (for print)	21%	0%	11%	5%
web design/development	11%	0%	0%	5%
mobile app development	0%	0%	0%	0%
Other (please specify)	21%	29%	4%	5%

This year, the top positions shops for which shops are looking to hire, broken down by size classification, are:

- 1-9 employees: inside sales representative, 26%, down from 39%, and press operator, 26%, up from 19%.
- 10-19 employees: inside sales representative, 43%, up from 42%, and postpress/bindery/finishing, 36%, up from 21%.
- 20-49 employees: postpress/bindery/finishing, 54%, up from, 36%; inside sales representative, 46%, up from 36%; and press operator, 46%, up from 28%.
- 50+ employees: press operator, 55%, up from 31%; outside sales representative, 50%, up from 38%; and postpress/bindery/finishing, 50%, up from 26%.

The employment situation seems to be less dire than it had been in 2021, and certainly during the pandemic. Hiring and retaining staff are still somewhat of a challenge, but print businesses have been adapting. Hiring will continue to be the challenge it has always been, and the hope is that increasing automation will take up some of the slack.

### Recruitment Sources

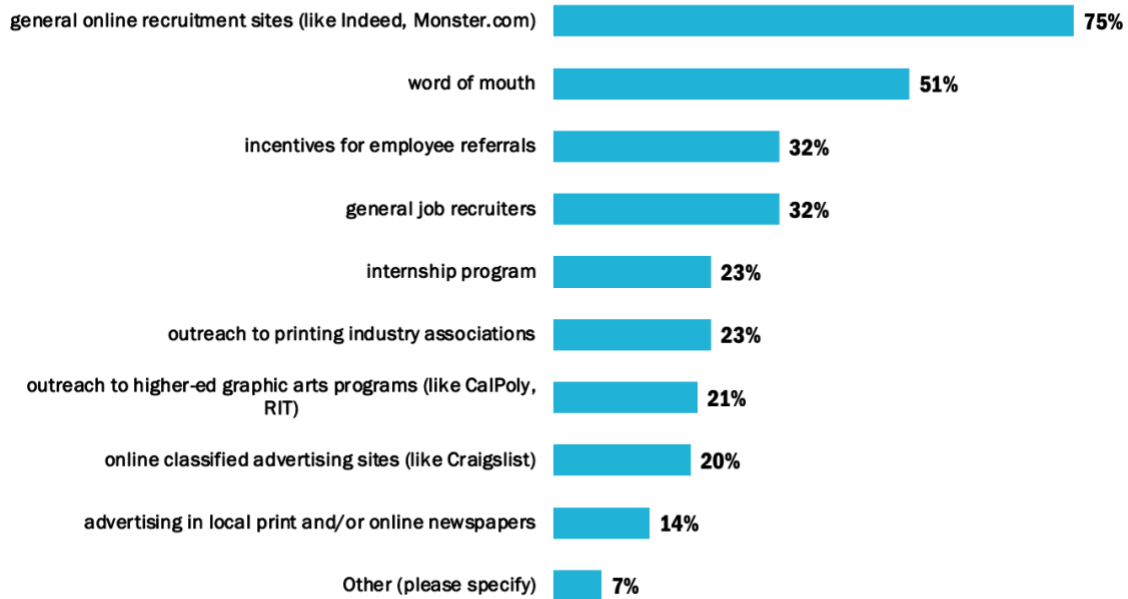
Part of the challenge is, where are companies looking for employees?

The top response, selected by 75% of respondents who were looking for staff (up from 50% last year), said “general online recruitment sites,” followed by “word of mouth” (51%, up from 35%). “Incentives for employee referrals” (which was added to this survey), and “general job recruiters” are tied at (32%), with the latter up from 16%.

As one might expect, “advertising in local print and/or online newspapers” dropped from 24% to 14%.

One-fourth (23%, unchanged from last year but up from 18% in 2021) find staff via outreach to industry associations, while 21% (up from 18%) reach out to specific graphic arts programs like those at Clemson or CalPoly.

## If Yes, How Are You Searching for Staff?



## WhatTheyThink

N=102

	1-9 employees	10-19 employees	20-49 employees	50+ employees
general online recruitment sites (like Indeed, Monster.com)	58%	77%	78%	79%
online classified advertising sites (like Craigslist)	11%	15%	26%	21%
advertising in local print and/or online newspapers	16%	0%	19%	14%
general job recruiters	16%	31%	26%	44%
outreach to higher-ed graphic arts programs (like CalPoly, RIT)	26%	23%	22%	16%
outreach to printing industry associations	21%	31%	19%	23%
internship program	16%	15%	26%	26%
word of mouth	63%	31%	56%	49%
incentives for employee referrals	16%	15%	44%	37%
Other (please specify)	16%	8%	0%	7%

Unlike what we saw last year, smaller establishments are more likely than larger ones to avail themselves of university graphic arts programs. Small establishments are still abundantly likely to rely on word of mouth. Overall, general recruitment resources are the predominant way that print businesses find staff.

We encourage shops that are in desperate need of staff to look to groups like the Print and Graphics Scholarship Foundation (PGSF) ([www.pgsf.org](http://www.pgsf.org)). They actively support and train the next-generation print industry employees. There is also the Mariano Rivera Foundation

(<https://themarianoriverafoundation.org>), which brings mentorship, life skills, STEM education, and vocational training to at-risk youth, and receives support from industry vendors such as EFI, Konica Minolta, Ricoh, Idealliance, PRINTING United Alliance, and Adobe. It has already started funneling much needed talent into the printing industry. (See the Industry Trends section for some story links about the MRF.)

If you are in the sign business, every year the International Sign Association (ISA) promotes Sign Manufacturing Day ([www.signs.org/mfgday](http://www.signs.org/mfgday)), providing sign shops with resources to host groups of local high school, vocational school, or community college students to explore opportunities in sign manufacturing. There have been some great success stories<sup>17</sup>. They pick a day in October to host Sign Manufacturing Day, but it can be whatever day is convenient for all involved. (There is also no reason why commercial printers can't also adopt the M.O. and host their own "Print Manufacturing Day" or the like.)

Another overlooked resource is the local public library. For years—and especially since COVID—public libraries have offered a wealth of job training and even entrepreneur skill building programs, ranging from online learning platforms to learn specific skills to in-person classes on job hunting skills like interviewing and resume-building. Libraries are often eager to work with the local business community and are always looking for partners. They also often participate in local job fairs. Again, if job recruitment remains a challenge, the local library could be a great resource.

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<sup>17</sup> Richard Romano, "ISA's Upcoming Sign Manufacturing Day Offers Sign Businesses Employee Recruitment Opportunities," WhatTheyThink, August 25, 2022, <https://whattheythink.com/articles/111907-isas-upcoming-sign-manufacturing-day-offers-sign-businesses-employee-recruitment-opportunities/>.

## 5. AUTOMATION AND AI

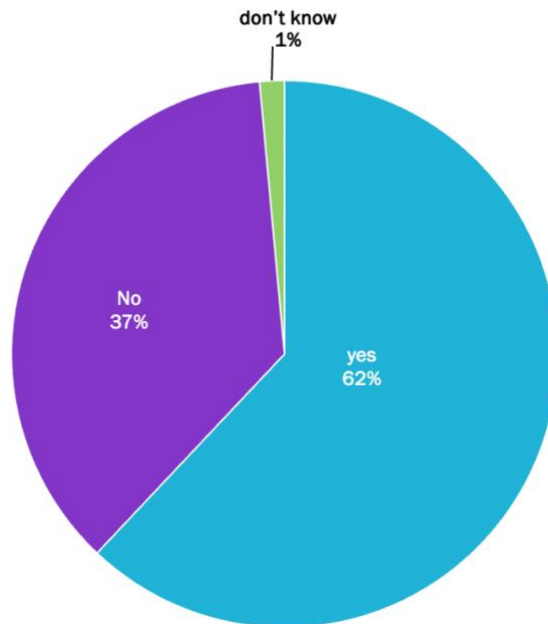
Two hot topics as of late are automation and artificial intelligence (AI)—or, more accurately, machine learning (ML). We added a set of questions to our Fall 2023 survey to suss out what the industry makes of these topics.

### Automation

If you ask any five people in the industry what they mean by “automation,” you’ll likely get five different answers. Automation can mean anything from an online storefront that feeds directly into a shop’s production process, to software that takes a submitted customer file and shunts it through all the stages of prepress and right to the press itself, to robotics that move or feed piles of paper or other substrates into and/or out of the press or other type of printer (such as robotic arms used on flatbed wide-format printers).

So, first of all, are printers availing themselves of “workflow automation”? In general, yes; 62% of our respondents said that, yes, they have implemented workflow automation, while 37% say they haven’t.

### Have You Implemented “Workflow Automation” in Your Facility(ies)?



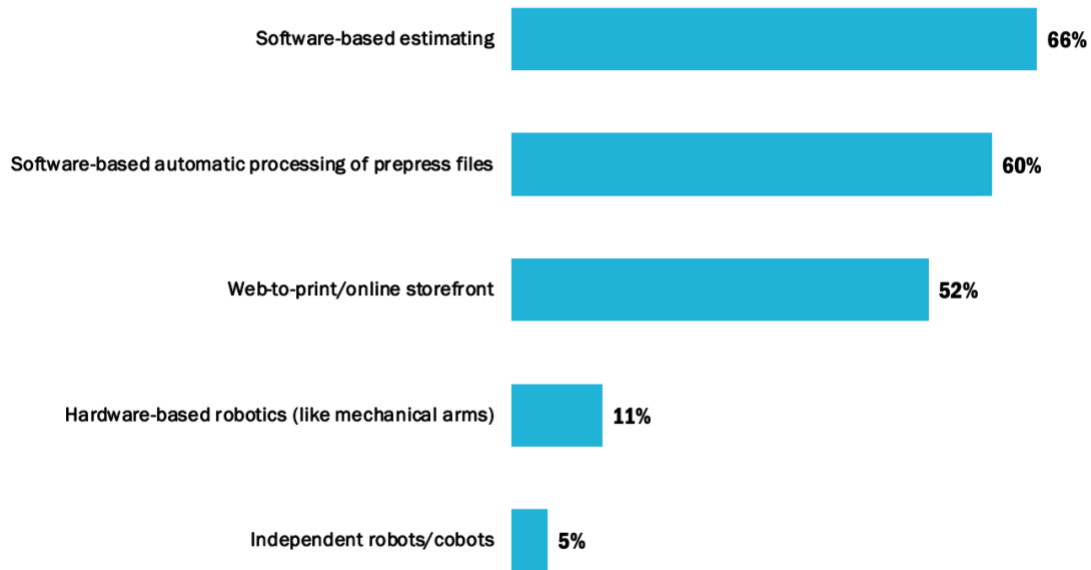
N=137

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Yes	34%	67%	63%	80%
No	66%	33%	31%	20%
Don't know	0%	0%	6%	0%

Generally speaking, large and mid-size firms are more likely to have implemented workflow automation than small firms.

Which of course begs the question: what do they mean by “automation”? For two-thirds of those firms that say they have implemented workflow automation, they are referring to “software-based estimating.” (Alas, no more “Sally in the back.”) For 60%, automation is “software-based automatic processing of prepress files,” and for 52%, they are referring to “web-to-print/online storefront.” Hardware-based automation is, not surprisingly, far down the list.

### If Yes, What Is the Nature of that Automation?



## WhatTheyTh!nk

N=88

Yes, the response rate to this question was appalling, so these cross-tabulations are not the most robust data in the world:

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Web-to-print/online storefront	58%	67%	59%	43%
Software-based estimating	75%	58%	73%	62%
Software-based automatic processing of prepress files	33%	58%	64%	67%
Hardware-based robotics (like mechanical arms)	17%	8%	0%	17%
Independent robots/cobots	8%	8%	0%	5%

We asked an open-ended question about the challenges faced when attempting to implement automation, and here is a selection of responses:

*What are the challenges your business faces in implementing “automation”?*

- Cost [the most common comment].
- Employees

- We operate on an MIS that was built over time by our internal dev team, but it has no print-specific logic or integration capabilities. We are a multi-faceted company that is not only involved in print.
- Talent and learning curve.
- Figuring out what would work best
- Return on investment. Does it really save time.
- Fluidity of pricing as material costs change so quickly
- Understanding the many options that are available.
- Capital investment is high.
- We were the Durst LIFT pioneer. It has taken us 5 years to fully implement. Next effort comes in whatever Durst has coming in the next year or so for post-printing automation.
- All the variations in commercial printing.
- Finding enough time in the day to get everything accomplished.
- We do not have software based to place jobs...it is very 1990s.
- Keeping up with inventory numbers; adding ever-changing products to the storefront.
- Getting the right person in the right seat to dedicate the time needed for implementation.
- Lack of time for implementation.
- Selecting the right system and training.
- Cost of capital and lead times to get automation equipment installed.
- Older employees giving pushback and not accepting newer technologies providing automation. Only like doing it the way they have been doing it.
- Getting team members to stop doing things the old way.
- We keep up with different products customers are using.
- None, hope it will solve our problem finding qualified help.
- We have numerous supporting technologies that need to be integrated to enable the automation.
- Helping our employees embrace change and improvement.
- Staffing the business analyst role with industry knowledge to facilitate the coordination and communication of those projects.
- Staff to train and support others.
- Finding or developing the right software for our workflow.
- Getting staff and customers up to speed on how to use it.
- Lack of knowledge about it.
- Managing change.
- Automation removes the people from the finished product. Results are mediocre to terrible.
- Information gathering/updating and managing for site surveys.
- Finding the best solution that can help us now and grow with our needs.
- Time and the people to get it done.
- Rapidly changing customer requirements.
- Cost of Web-to-print.
- Lack of IT time.
- Considering automating more of our finishing. Cost is always a factor, and where to focus investments.
- Internal resources to make it happen.
- Acceptance by employees.
- Insufficient staff to manage the process.
- Owner willingness to change the culture.
- Too expensive for our industry compared to others.

And the write-in comment winner is:

- Getting these morons to use it.

## “Artificial Intelligence”

Unless you have been stranded on a deserted island for the past two years, you likely have at least heard of so-called “artificial intelligence” (AI) or, to use a technically more correct term, “machine learning” (ML). This is not the place to go too deep into what AI specifically is (Cary Sherburne wrote an “AI explainer” article last fall that provides a good overview)<sup>18</sup> and while some are skeptical about its uses at all, much less for the industry, the fact remains that it is starting to be built into some common industry software. So, are printing companies using it? Do they plan to? Or do they reject the whole idea? We asked about some common AI/ML uses for print production:<sup>19</sup>

- Service and training
- Predictive maintenance
- Production analytics
- Job intake/on-boarding
- Scheduling and planning
- Estimating
- Graphic design/layout/creative services
- Prepress automation
- MIS/ERP implementation

For each we asked if they:

- Use now in our shop
- Will start using in 2024 or 2025
- Considering use after 2025
- Won't ever use
- Don't know

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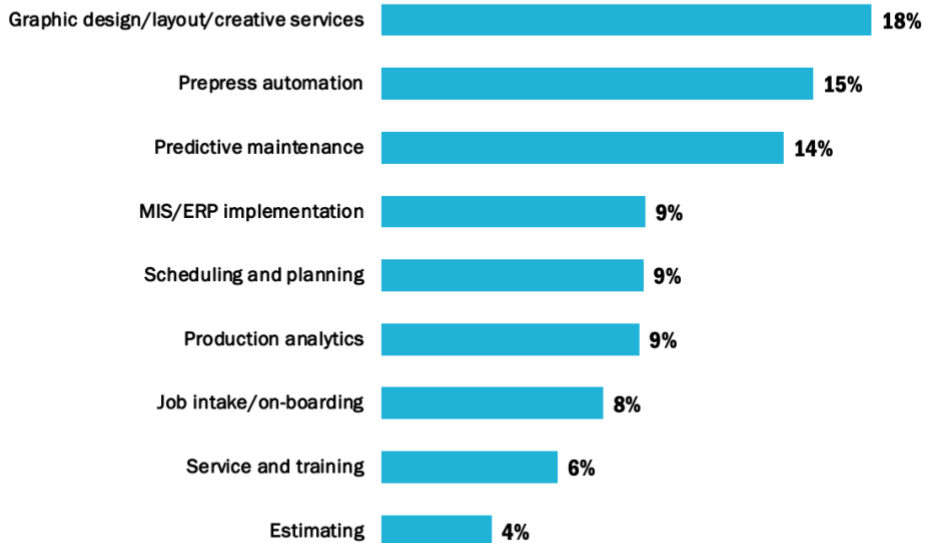
<sup>18</sup> Cary Sherburne, “Artificial Intelligence (AI): An Explainer,” WhatTheyThink, October 16, 2023, <https://whattheythink.com/articles/116952-artificial-intelligence-ai-explainer/>.

<sup>19</sup> Thanks to Keypoint Intelligence's Greg Cholmondeley for this list.

**Use Now**

Eighteen percent of respondents say they use AI now for graphic design/layout/creative services while 15% use it for prepress automation and 14% use it for predictive maintenance.

### What Is Your Business' Approach to AI and AI-Related Technologies for the Following Functions? — Use Now In Our Shop



## WhatTheyTh!nk

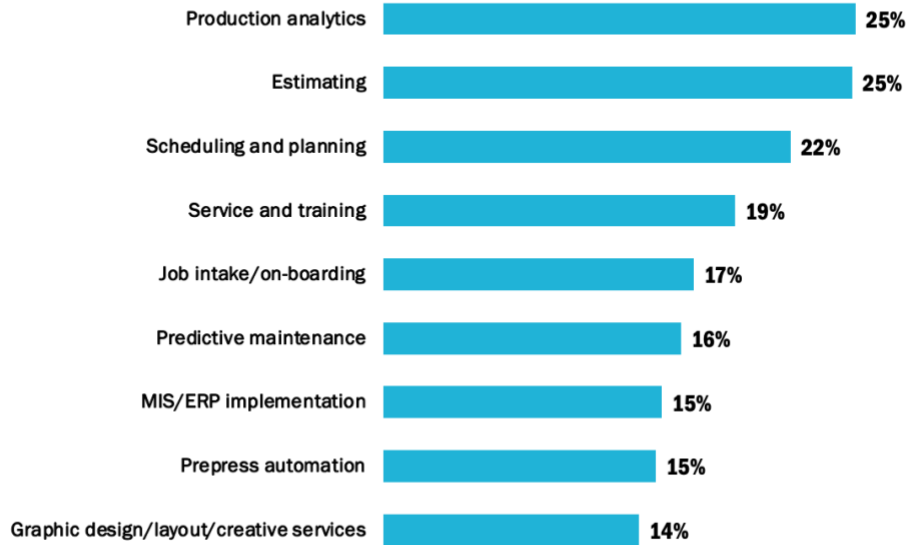
N=136

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Service and training	9%	0%	3%	9%
Predictive maintenance	10%	18%	12%	18%
Production analytics	3%	12%	12%	11%
Job intake/on-boarding	0%	6%	11%	11%
Scheduling and planning	0%	12%	12%	13%
Estimating	3%	0%	0%	9%
Graphic design/layout/creative services	15%	12%	11%	27%
Prepress automation	3%	0%	17%	28%
MIS/ERP implementation	0%	6%	9%	17%

**Will Start Using in 2024 or 2025**

Of those who don't currently use AI for any of these functions, do they plan to start in the next year or two? For 25%, they plan to start using AI for production analytics and estimating, while 22% aim to start using it for scheduling and planning and 19% for service and training.

**What Is Your Business' Approach to AI and AI-Related Technologies for the Following Functions? — Will Start Using In 2024 or 2025**



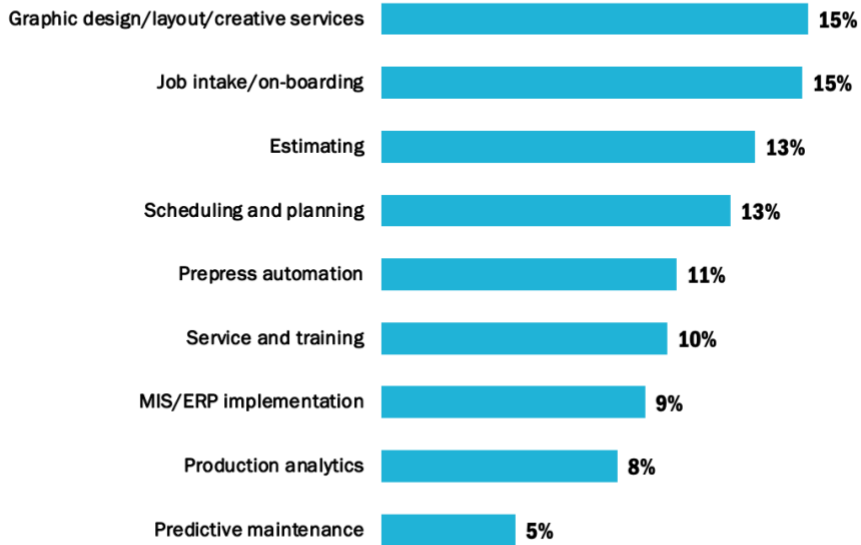
N=136

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Service and training	6%	25%	17%	27%
Predictive maintenance	0%	18%	15%	27%
Production analytics	6%	24%	38%	30%
Job intake/on-boarding	7%	12%	20%	22%
Scheduling and planning	13%	18%	29%	24%
Estimating	13%	29%	34%	24%
Graphic design/layout/creative services	9%	12%	26%	9%
Prepress automation	7%	13%	26%	12%
MIS/ERP implementation	7%	18%	24%	13%

**Considering Use After 2025**

What about considering to use AI sometime after 2025 (if it hasn't destroyed humanity by then)? For 15%, they would consider using it for graphic design/layout/creative services and job intake/on-boarding. For 13%, estimating and scheduling and planning.

**What Is Your Business' Approach to AI and AI-Related Technologies for the Following Functions? — Considering Use After 2025**



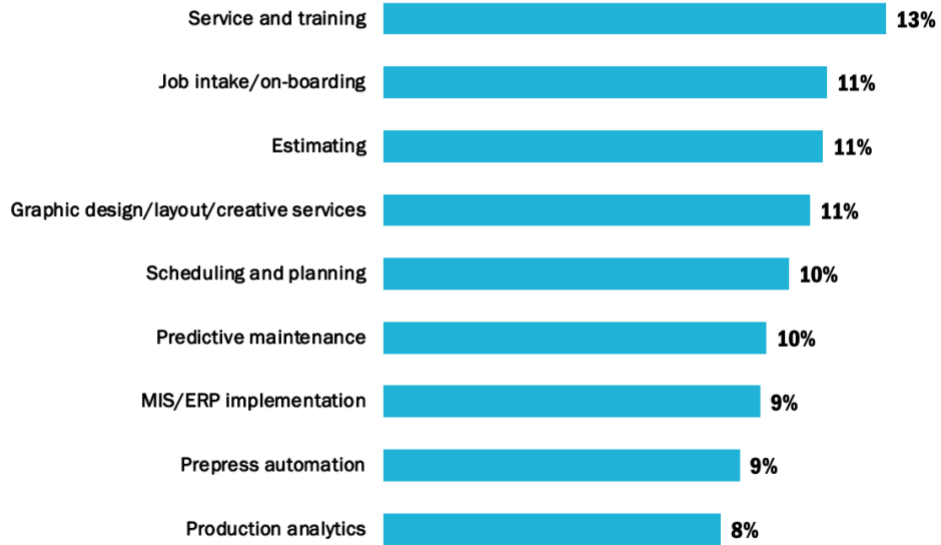
N=136

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Service and training	9%	6%	23%	2%
Predictive maintenance	10%	0%	3%	5%
Production analytics	16%	0%	3%	11%
Job intake/on-boarding	21%	12%	14%	13%
Scheduling and planning	13%	12%	15%	11%
Estimating	13%	6%	20%	11%
Graphic design/layout/creative services	26%	0%	20%	9%
Prepress automation	14%	6%	11%	9%
MIS/ERP implementation	7%	6%	12%	11%

**Won't Ever Use**

Surprisingly few respondents have completely ruled out ever using AI. For 13%, they say they'll never use it for service and training, followed by job intake/on-boarding, estimating, and graphic design/layout, all at 11%. These are probably the same percentages that will never use an MIS, an automated estimating system, and still use paper job tickets.

**What Is Your Business' Approach to AI and AI-Related Technologies for the Following Functions? —Won't Ever Use**



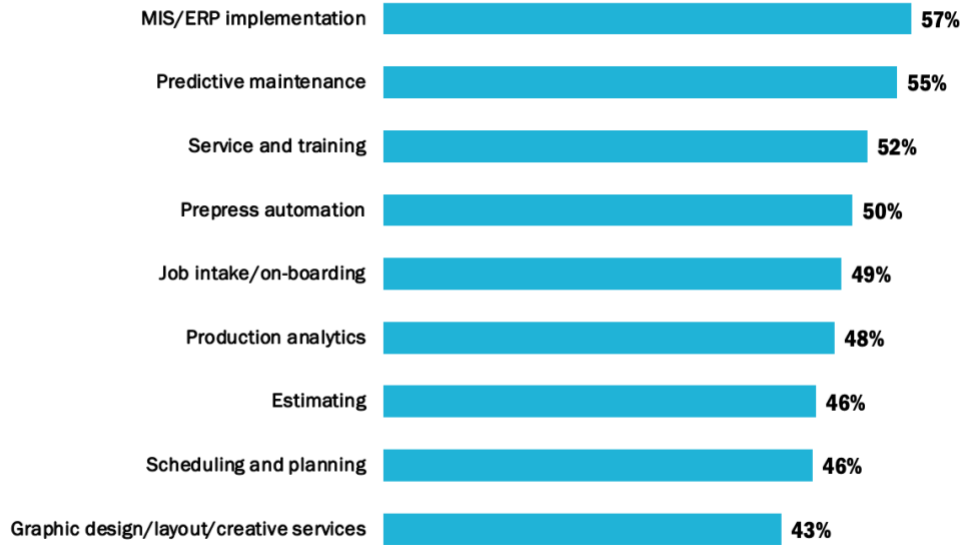
N=136

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Service and training	25%	13%	3%	11%
Predictive maintenance	23%	12%	6%	2%
Production analytics	19%	18%	0%	4%
Job intake/on-boarding	21%	18%	3%	9%
Scheduling and planning	23%	12%	3%	7%
Estimating	23%	18%	3%	7%
Graphic design/layout/creative services	15%	24%	0%	11%
Prepress automation	14%	19%	3%	7%
MIS/ERP implementation	20%	12%	0%	9%

**Don't Know**

This was the chart we were just about expecting—at this stage, no one is quite certain how AI/ML is going to play out in general, least of all in the printing industry. We saw the same basic thing a decade ago when “cloud computing” was first starting to appear on the industry’s radar. So we are not surprised that so many print businesses “don’t know” how or even if they will use AI. Stay tuned.

**What Is Your Business’ Approach to AI and AI-Related Technologies for the Following Functions? —Don’t Know**



**WhatTheyTh!nk**

N=136

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Service and training	50%	56%	54%	50%
Predictive maintenance	57%	53%	65%	48%
Production analytics	56%	47%	47%	45%
Job intake/on-boarding	52%	53%	51%	44%
Scheduling and planning	52%	47%	41%	46%
Estimating	47%	47%	43%	49%
Graphic design/layout/creative services	35%	53%	43%	44%
Prepress automation	62%	63%	43%	44%
MIS/ERP implementation	67%	59%	56%	50%

## Looking Ahead

Six out of 10 respondents use some kind of workflow automation, most of them large and mid-size firms, and for the bulk of them “workflow automation” means “estimating,” “processing of prepress files,” and “web-to-print.” As we saw in our challenges, opportunities, and investments sections, it looks like 2024 is going to be the turning point for automation, where businesses are going to get more educated about it, implement it in greater levels, and automate more things. There are of course limitations to automation—shops that offer a lot of different kinds of jobs and a lot of “bespoke” work (like a lot of sign and display graphics shops) may have a tougher time automating the bulk of their workflows—so people will still need people for the foreseeable future. But the difficulty in finding those people will continue to drive more and more shops to increasing automation. And while robotics is still pretty far down the list here (largely due to cost), it may become a more viable option in the next decade. At the same time, manufacturers are adding more automation features to their equipment—be it presses, finishing equipment or ancillary equipment like unwinders/rewinders, so, to some extent, “automation” is not something a shop has to itself implement. Rather, it is simply built in to equipment.

As for AI/ML, we were not expecting a tremendous positive response to that question, but we were surprised that it was being as implemented as much as it was. We suspect that AI is simply going to be one of those things that gets integrated into the software (or even hardware) that printers already use. At the moment, “AI-driven” is more of a marketing phrase than anything else right now, but as the buzz dies down, it will simply be the way print software works and we, at some point, won’t think two ways about it.<sup>20</sup>

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<sup>20</sup> In the Industry Trends section, we touch on some of the concern creatives have about AI-generated artwork.

## 6. IN THEIR OWN WRITE

We ended our survey with an open-ended question asking respondents to share comments about how their business fared in 2023 and how they expect business to be in 2024. Here is a selection of their comments.

- Always looking for tuck-in business.
- Basically flat in 2023, due to down volume in two largest accounts, both of which we expect to rebound in 2024.
- Client supply chains still in flux concerning international production, which causes domestic decision delays.
- Business was down 35% from 2022 but oddly 2021 and 2022 were great years. Many of my clients share the same story. If I compare my sales to them, and thus how their business was doing, their sales in 2023 were about the same as 2020.
- 2023 was a strange year. Very inconsistent month to month and year to year! Trends meant virtually nothing. The market is very odd.
- Stable. New and younger buyer emerged with the need to communicate the way they wish and educate.
- 2023 exceeded our expectations; 2024 will be slightly down
- We had a very good year in 2023 in top line sales and profitability. We are cautiously optimistic that 2024 will be the same.
- The market is in such fluxuation right now; busy two weeks and then slow two weeks. We need some stability and consistency to allow us to better plan and forecast.
- 2023--We did not focus on sales growth. We focused on accounts that would honor us with margin. The cost savings in a fully implemented Durst LIFT/Workflow+ process is huge. 2024--As a student of history since 1966, 2024 might be a very painful year.
- Decreasing paper pricing is a problem going into 2024.
- Business up 10% each year for the last 3 years. Expect more of the same for 2024.
- We are a dated print house company but the largest commercial printer so we are people's only resource to print.
- We are an in-plant department and our workload has tripled in the past two years. We expect to see continued growth throughout 2024.
- I went to school and updated my skills for 2024
- 2023 started off very promising but ended on a flat note. 2024 will start off slowly with the potential to pick up in the 2nd quarter. Economic uncertainty does factor in. We are more aware that things can change at any time and we must remain agile and resourceful.
- Much worse in 2023 v. 2022. Expect a slight uptick in 2024.
- Business environment feels hard to forecast based on inflation, election, geo-political unrest. Best opportunities appear to be in gaining market share or offering new services using technology.
- Inflation has hit our staff very hard. It's becoming difficult to retain employees without significantly reducing our profit margins or increasing prices.
- Expect start of 2024 to be soft and second half of 2024 to be stronger.

- Business increased about 5%, but so did cost for materials. Right now, hard to say. Should stay the same or increase, but all depends on the overall economy.
- Very unpredictable because 2024 is a year of presidential elections.
- Doing well, will do better in 2024 despite partial retirement.
- If the current management team is still in place, this company will be out of business before the end of 2024.
- Small rural town commercial printer. Lost a large account that used significant amount of our time. Were able to make up those lost sales and free up resources and time. Printing bags continues to be an integral part of our business that we are looking to modernize procedures that will allow us to print faster with more options while keeping prices comparable for our customers.
- Our largest pressures are outside our costs—postage and paper costs continue to stay high while mills ask when demand will return.
- Overall sales growth but profits down slightly.
- 2023 is on track to be our highest sales in our 27 year history. We have also increased our Net Profit % significantly.
- Decreased revenues required disciplined costing, which we were able to do to keep bottom line performance metrics in good shape.
- Flat to slightly up in 2023. Expecting improved conditions and results in 2024, probably toward EOY 2024.
- Coming off of an incredible year in 2022, 2023 was a reflection of the timidness of the economy and clients that needs to regain fiscal responsibility after a wild spending spree post-pandemic. We certainly felt a slow start to 2023 but business has slowly regained strength as we head into 2024 and we expect that to continue.
- Diversifying services offered.
- We have been able to add a number of systems, and develop methodology, but full implementation has been a challenge.
- We improved over 2022. We had increase in variable data printing used in recruitment of students and reaching out to alumni.
- Been very rough, hard to find anyone who will work and cannot afford high wages.
- Struggle to maintain sales as industry has changed and COVID crap cost many clients to downsize or close. With current national leadership I don't see much hope other than trying to increase sales with current clients.
- 2024 will mark a continuation of a return to pre-COVID business activity.
- Overall, US printing volume continues to shrink, number of businesses and employees along with it. There may be some cause for optimism among a few companies but many are just hoping to survive for another year. Profits remain tiny to non-existent. Artificial intelligence software will further reduce employee count and the craft of printing will be encapsulated in so-so software. For my business, 2023 was better than 2022 and there may be some growth in 2024 but the trend I see is toward lower quality and less attention to detail.
- My competition are all retiring.
- Our business has dropped significantly this year from 2022. We expect growth in 2024 with addition of more sales people and boost from election year-related print.

- Some attrition due to intense price pressure. Printers can no longer outsource, add markups and be competitive. Considerable upside by internalizing outsourcing and adding new capabilities using existing people and equipment.
- Expenses killed profits in 2023—hopefully paper prices continue to stabilize and expect to grow profit margins in 2024.
- Our business in 23 has picked up, but due to a major restructure we have not seen the benefits. We expect this to happen in FY24.
- Growth has slowed. Customers more picky, tighter holding onto cash.
- Label business for us is down a lot from 2022. Competition is fierce. Competitors are dropping their prices making it hard to compete. Overbuying in 2023 is still hurting us. We feel many competitors may still have stocked up material from 2022 they need to offload.
- Survey seems very tilted to InkJet, AI & Fabric, maybe that's a direction for larger printers but smaller print/digital still run heavy on digital toner (Xerox, KM, etc) & just trying to recover with the economy stagnate or still settling in from Covid.
- 23 was a good year. 2024 is still a bit of unknown.
- Nice growth in 2023, larger growth coming in 2024.
- Early part of 2023 was weak but becoming stable in Q4. We expect a small increase over 2023 with additional marketing efforts but will be difficult.
- We had positive expectations but the reality produced measurably less...like many others, we believe there is a two-tier economy and that the vast majority of the U.S. (and likely the planet) is in a recession the past three years...
- Paper more available which created more price competition among competitors, trying to keep sales up through a slow growth-no growth year.

## 7. GRAPHIC COMMUNICATIONS INDUSTRY ECONOMIC TRENDS

Let's pull back from our own survey and round up other industry data from our usual suspects (Bureau of the Census and other government sources). We will look at:

- Commercial printing establishments
- Printing industry shipments
- Printing industry employment
- Publishing revenues
- Sign manufacturing and outdoor advertising establishments and employment
- Packaging and converting establishments, shipments, and employment

These are aggregate industry data, a combination of industry leaders, laggards, and everyone in between. When you see the trends, it's a baseline or an average. Always keep in mind that there are many profitable, healthy, and growing companies that are performing exceptionally well, and that underperforming businesses tend to drag down the average. Think of it as the opposite of survivor bias.

For those of us who are anal retentive, it is difficult to present the exact same data sets in the exact same way for all business categories, as they all come from different sources from within the government. Most data comes from the US Bureau of the Census, either via their *County Business Patterns* or *Annual Survey of Manufactures*, while some employment figures come from the Bureau of Labor Statistics. Often, revenues/shipments can only be obtained for very broad NAICS categories (like three-digit NAICS). Data (especially revenues) is presented differently for manufacturing NAICS categories vs. service NAICS categories. We would love to clean up and standardize this industry data section, but the sources can be a little too chaotic—like the industry itself sometimes!

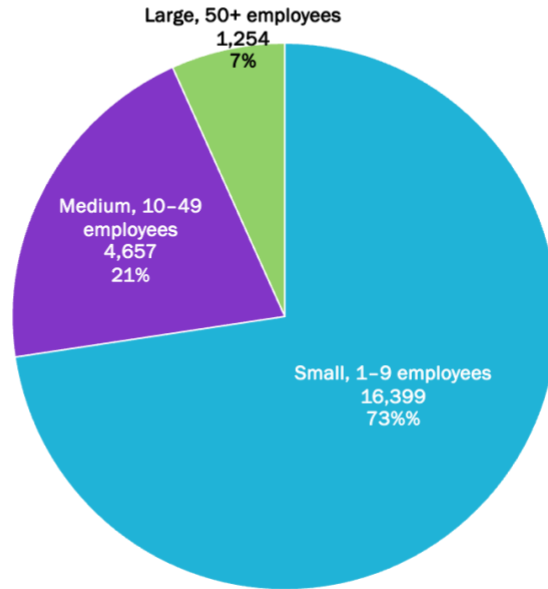
### Printing Establishments

The composition of the printing industry—NAICS 323<sup>21</sup>—is predominantly small businesses; 73% of the 22,580 establishments counted in 2021 were those that had under 10 employees. Just over one-fifth (21%) are “medium” printers (10–49 employees), and only 7% are 50+-employee plants. Those 7% are very important: they still represent a large portion of industry revenues, and about 70% of the industry's capital investment. The two charts below have been updated with 2021 *County Business Patterns* data, which was released in 2023, as well as estimates from our own forecasts.

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<sup>21</sup> “The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy” (<http://www.census.gov/eos/www/naics/>). NAICS 323 is “Printing and Related Support Activities.” But, see Appendix A for other NAICS categories we often find print businesses.

## US Commerical Printing Establishments by Number of Employees, 2021 Total Establishments: 22,580

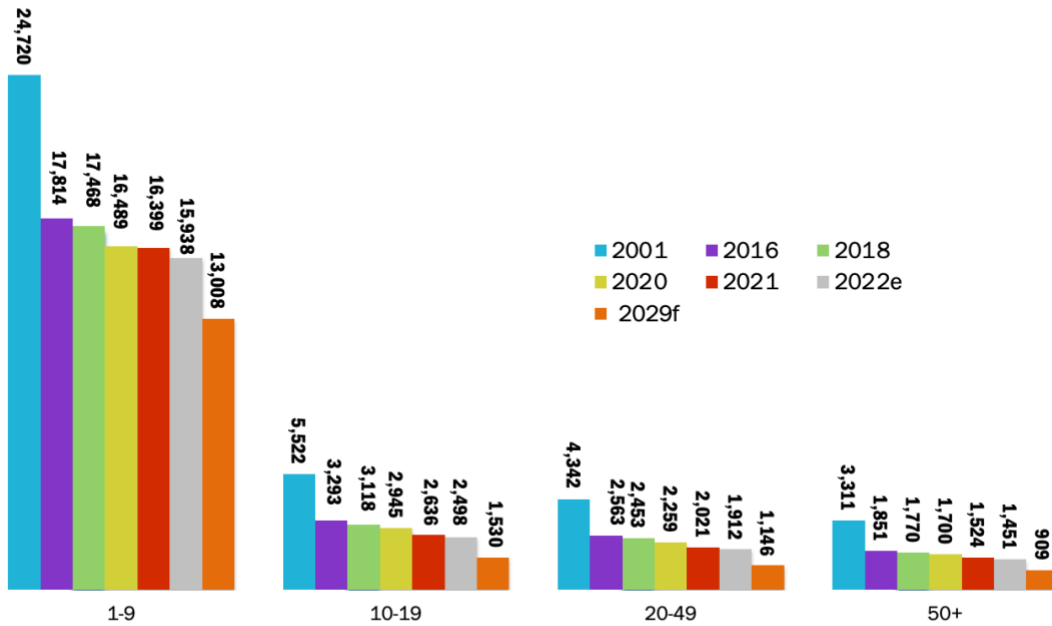


**WhatTheyTh!nk**

Source: County Business Patterns

The historical chart below includes a 2028 forecast:

## Change in US Commerical Printing Establishments by Number of Employees, 2001–2028



Source: County Business Patterns; WhatTheyThink calculations

Between 2020 and 2029, we are looking to continue to consolidate the smaller end of the industry by about 3,400 establishments, while at the higher end, we’re looking at a decline of another 610 or so establishments.

There is one other trend we usually mention in this space when we consider changes in numbers of printing establishments. We have been seeing a kind of printing industry diaspora. As we mentioned above, all the government data we have historically tracked is from NAICS 323—Printing and Related Activities. However, not all businesses that we would consider printing today—or, more importantly, what *those* businesses would consider printing—are classified in 323. Sign manufacturers, for example, are largely in NAICS 339. Sign lettering and painting are classified in NAICS 541. Manufacturing and printing advertising specialties are classified in the Manufacturing sector according to the products made. Manufacturing die-cut paperboard displays are classified in NAICS 322. Packaging converters are in 322. You get the picture. And then there are print businesses that took to heart the exhortation to become “marketing services providers” and classify themselves in a marketing or communications NAICS. This is a bit “Inside Baseball,” but until we can figure out a way to wrangle the industry, we’ll rely on good ol’ 323.<sup>22</sup>

### M&As

One side effect of the pandemic was a slowdown in merger and acquisition (M&A) activity, which reversed itself in 2021, continued into 2022, but slowed a bit in 2023. In September 2023, our M&A guru Mark Hahn of Graphic Arts Advisors offered his annual round up of deal activity<sup>23</sup> and found that:

<sup>22</sup> We did ask about this in last year’s survey, and while a lot of respondents simply didn’t know (their accountant usually makes this decision), the majority were still in 323, so our data are still largely relevant. But we’ll keep tabs on it.

<sup>23</sup> Mark R. Hahn, “The Target Report Annual Review—August 2023 TTM M&A Activity,” WhatTheyThink, September 12, 2023, <https://whattheythink.com/articles/116503-target-report-annual-reviewaugust-2023-ttm-m-activity/>.

In pure numeric M&A terms, deal activity during the past twelve months was off 13.1% from last year and was the same as the pandemic year, based on our analysis of the twelve months ended August 2020. We identified approximately 192 transactions of interest during the past twelve months; exactly the same number we tracked in the period ended August 2020, when many companies took the biggest hit from Covid, and dealmakers hit the brakes.

Where are the hot spots? Packaging continues to lead the, er, pack:

For the third year in a row, the packaging business is again the most active among the segments we track. However, consistent with the reduction in overall deal activity, we found 43% fewer publicly announced transactions in the packaging segments we track. The red hot market for label printing companies has finally cooled off a bit. We hear that buyers are being cautious due to the higher interest rates and possible future economic headwinds.

And wide format had been a hot spot, but things change:

the salad days for wide-format printing are over. Digitally printed banners and wraps are no longer unique, flatbed printing devices are ubiquitous, and the high margins that came with being an early entrant offering large inkjet prints have been compressed by competition. Entry-level equipment is no longer expensive, flatbed cutters and other finishing technology are widely installed. Differentiation in the wide-format business has moved from those that had first-mover advantage to businesses that have perfected more complex online direct-to-customer systems, robust planning and installation capabilities, or value-added services such as printing on canvas for use as home or office décor.

In the general commercial printing segment, M&As are in kind of a holding pattern but tuck-ins remain popular.

The percentage of deals that were structured as tuck-ins stayed at approximately 30%, the same percentage as in 2022, in contrast to 79%, 44% and 48% of the deals that were tuck-ins during 2019, 2020, and 2021, respectively. In these tuck-in transactions, the customers of the acquired company are transitioned to the buyer's production facility. Buyers will often leave the disposition of the plant and equipment to the seller, or to the seller's agent, avoiding responsibility for trade and other debt, and possibly cherry-picking certain equipment that is needed or desirable for the smooth continued servicing of the acquired customers. In our opinion, a higher percentage of tuck-ins is indicative of overcapacity and financial stress, with the consequential result that there were fewer buyers willing to acquire an operating company within that segment of the industry.

Direct mail seems to be holding its own.

Transactional activity in the direct mail printing segment held steady over the past twelve months, with a total of six deals announced, versus 4, 8 and 9 during the prior three years, respectively. Indicative of the overall positive health of the direct mail segment, there were no tuck-ins. In another sign of a healthy print segment, two new entrants bought into the segment, both PE-backed and representing new platforms.

And bankruptcies continued to be down.

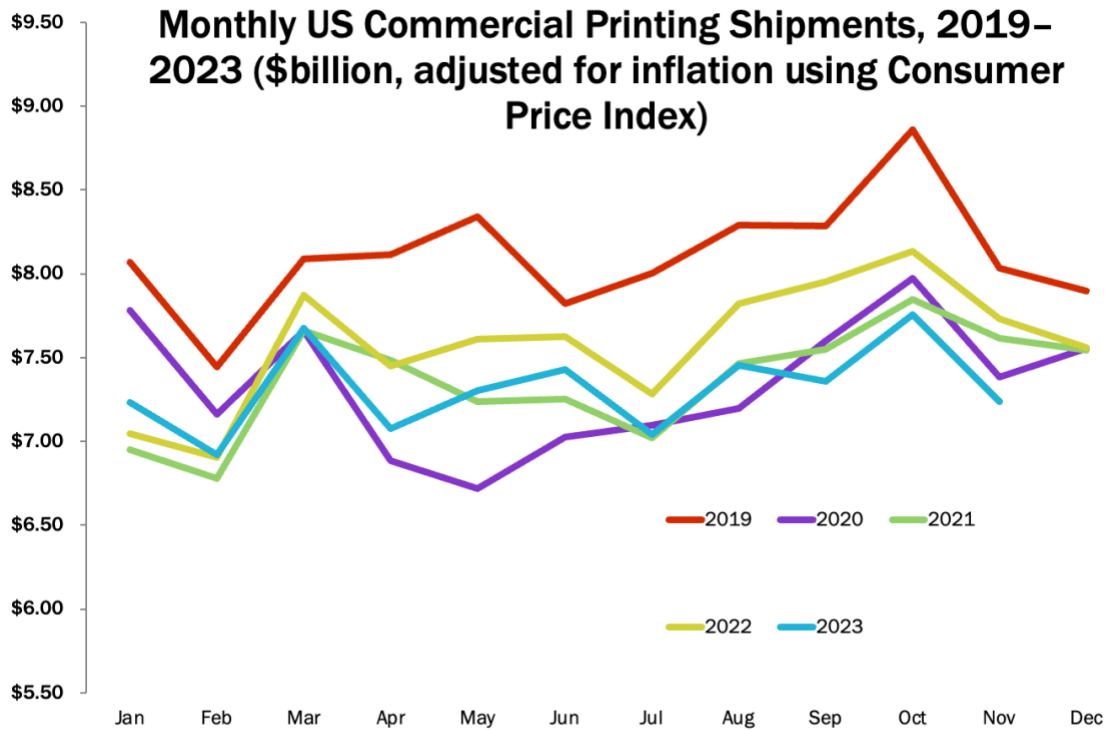
For the first time in our twelve years of studying these trends, the commercial printing segment is not the leader in the number of bankruptcies filed. Not surprisingly, the publishing of newspapers and magazines is now the category leader.

## Printing Shipments

Monthly shipments for 2023 showed a great start to the year, a crash in February, a quick rebound in March, and what may be a normal, seasonal decline in the fall and winter. 2021 started off a little rough, a sluggish summer and a peak in October, with the inevitable crash in November. With one month left to go, 2023 looks like it's going to fall a couple billion short of 2022, which we kind of expected. Unless we have a stellar December—but the historical trend for December doesn't suggest that will be likely.

### Monthly Shipments

If nothing else, we seem to have returned to the previous seasonality. November 2023 shipments (the most recent as this report was being finalized) came in at \$7.24 billion, down from the year's high of \$7.76 billion a month earlier. This should not be cause for concern, as business always drops in November and December as things slow down for the holidays.



Source: U.S. Census Bureau; WhatTheyThink calculations

### Year-to-Date Shipments

As a result, year-to-date (January to November) shipments for 2023 came in at \$73.24 billion, not quite as high as 2022’s \$75.69 billion. Although 2023 is likely to finish below 2022 shipments-wise, we can be a scosh optimistic about January 2024.

## January to November 2022 and 2023 US Commercial Printing Shipments (\$ Billion)



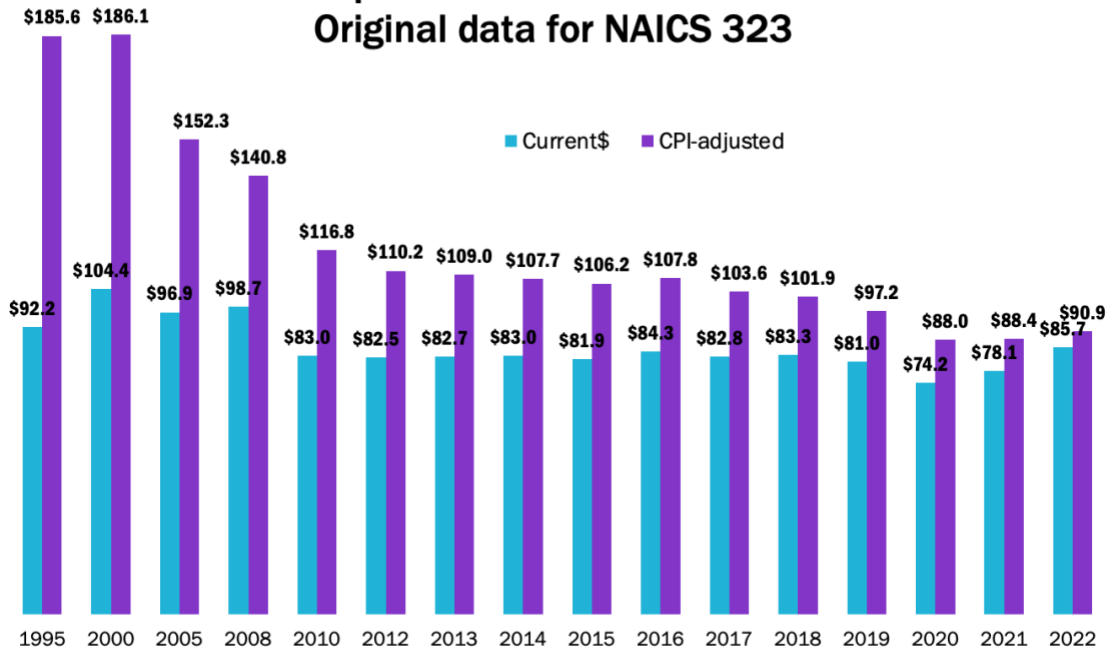
## WhatTheyTh!nk

Source: U.S. Census Bureau; WhatTheyThink calculations

### Annualized Shipments

Looking at annualized shipments for selected years since 1995, we can see where we’ve been. It was over 20 years ago that the industry had a \$180+ billion year (in inflation-adjusted dollars)—and just 10 years later, we were down to \$117 billion. The decline in shipments had been slowing and 2019 was a watershed year. 2020 should be an outlier but doesn’t seem to have interrupted the overall trendline at all—but remember that the forces that dragged down shipments in 2020 were unrelated to what we as an industry actually do. The industry lost so much of its value since 2000 because the Internet and electronic media drastically reduced the demand for printed materials. We know anecdotally that demand for some print materials (direct mail, books) increased during the pandemic and we know from the write-in comments in the previous section that many clients were cutting back or eliminating their use of print. Which will offset which? If we do indeed have a recession in 2024—and it seems like a lot of players are counting on it, if not actively cheerleading one, bizarrely, although so far there is no evidence at all that one is imminent—we may see the usual recessionary trend of print clients reducing their use of print in favor of “cheaper” electronic versions. (We saw this in 2001 and circa 2010 during the Great Recession.) An added hiccup is that with print consumables like paper still fairly high, the ability for printers to pass on those added costs to clients is largely over—and some of the write-in comments admitted as much. So there may be increased pushback from print buyers. Of course, none of this has anything to do with the *effectiveness* of print as a marketing medium, which has always been unassailable. But money talks.

### Annual US Commercial Printing Shipments for Selected Years Original data for NAICS 323



## WhatTheyTh!nk

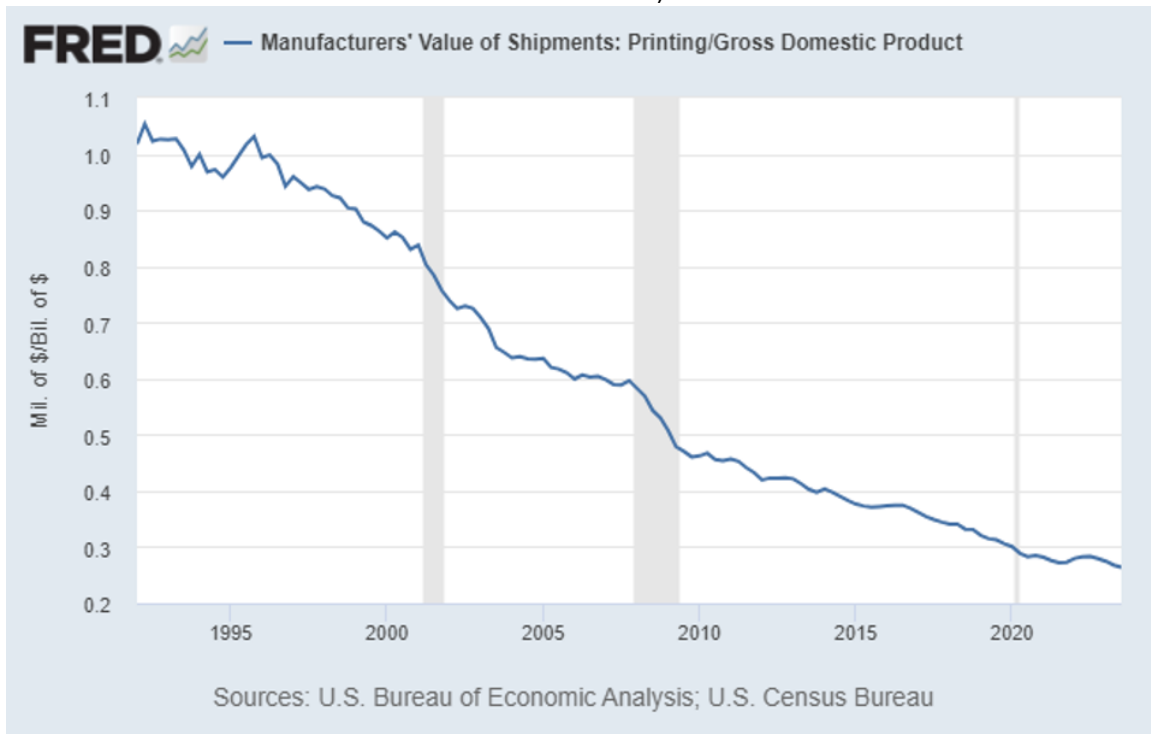
Source: U.S. Census Bureau; WhatTheyThink calculations

If we look at printing shipments as a percentage of GDP, since 1997 (see the chart on the next page), the value of printing shipments went from around 1% of GDP all the way down to just under 0.3%. (These figures are not inflation-adjusted so as to avoid disagreements about which inflation adjustment to use; we're just looking for an overall pattern.) We probably won't be getting back to anywhere close to 1% again, and if we do it will only be because GDP tanked, which, as we saw in 2020, is something that can happen.

As we always say in this space, this chart is essentially the story of technology. Printing shipments as a percentage of GDP started to plummet when the Internet truly arrived circa 1996 and while we can blame the recession for some of the drop after 2008, and the pandemic for 2020, remember also that this was also the period that saw the advent of social media, the smartphone, and mobile media. Every major advancement in electronic media has disrupted print's standing in the overall scheme of media.

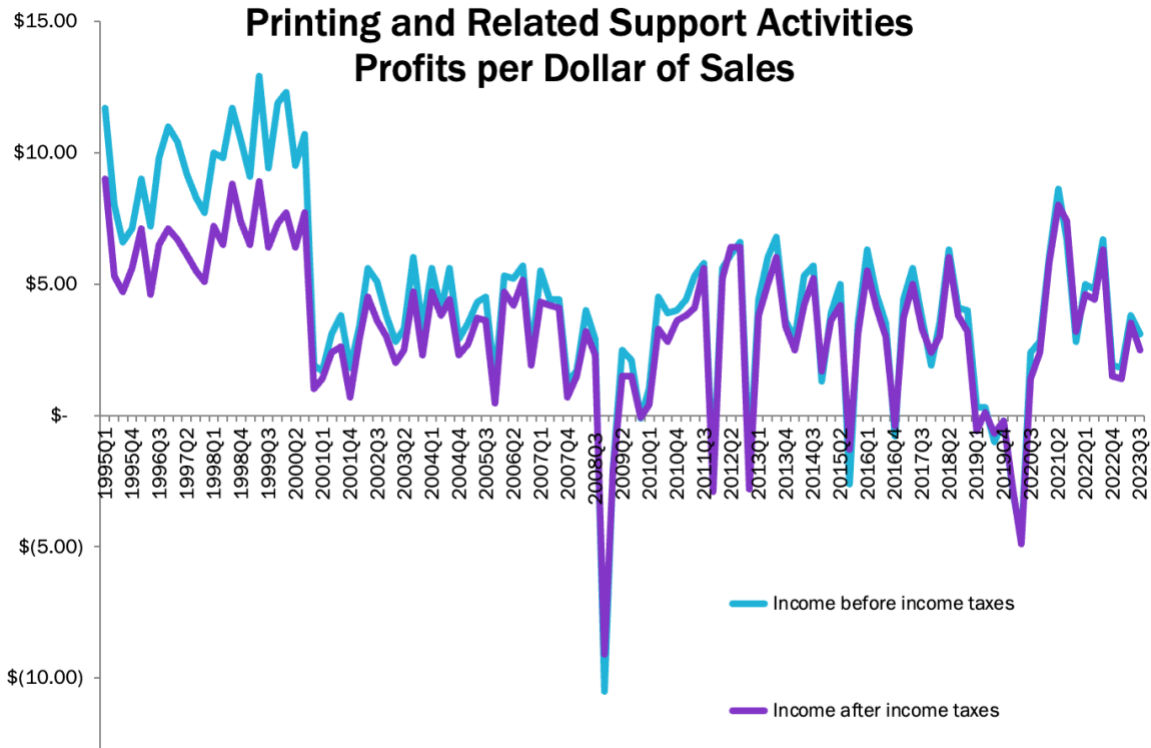
(We also usually warn about the coming of 5G, but which has been slow to truly arrive. "5G" stands for "fifth-generation" cellular wireless and offers faster speed, lower latency and thus less lag, and the ability to connect a lot more devices at once. This will someday boost things like gaming, video streaming, and other high-bandwidth applications, all of which compete with print in various capacities. We are still convinced it will arrive, but more slowly than we had been anticipating.)

## Printing Shipments as a Percentage of Current-Dollar GDP, 1992-2023



**Industry Profits**

Quarter-over-quarter profit margin data can be fairly noisy and while we’re up from the pandemic lows, our survey data and write-in comments indicate that profitability has been a challenge, even if orders and revenues are up. Costs are still high—paper, for example—but also employee costs. To both attract and retain staff, wages often need to increase—unsustainably so. Hence the above-average interest in automation.



**WhatTheyTh!nk**

Source: Department of Commerce Quarterly Financial Report

In Q3 2023, for large printers (those with more than \$50 million in assets), profits before taxes had been +1.18% of revenues, while for smaller printers (less than \$50 million in assets), profits before taxes in Q3 were +6.10% of revenues. We had been referring to the disparity between “big” and “small” printers as our “Tale of Two Cities” since there had been a great profit disparity between those two asset classes, but it looks like that is back to becoming the case, unlike last year where the “cities” had grown closer together. In Q3 2023, for the industry on average, profits before taxes were +3.07% of revenues, down from Q2’s +3.81%. For the last six quarters, profits have averaged +3.69% of revenues.

Basically, we are returning to our normal, pre-pandemic trajectory.

The asset class division is based on the breakdowns in the Census Bureau’s *Quarterly Services Report*, whence we get our profits data. Starting with the Q4 2019 *Quarterly Services Report*, the Census Bureau changed their asset class breakdowns from more/less than \$25 million to more/less than \$50 million.

## Printing Profits by Assets, Q2 2022–Q3 2023

Net Income Before Taxes	2Q 2022	3Q 2022	4Q 2022	1Q 2023	2Q 2023	3Q 2023	Simple average, last six quarters
All commercial printers	4.84%	6.73%	1.87%	1.84%	3.81%	3.07%	3.69%
<\$50 million in assets	5.79%	7.39%	2.97%	2.05%	5.90%	6.10%	5.03%
>\$50 million in assets	4.13%	6.31%	1.25%	1.72%	2.48%	1.18%	2.85%

NOTES: Approximate breakpoint for \$50 million is 100 employees. Data are from the Department of Commerce Quarterly Financial Report released December, 2023. Data analysis ©2023, WhatTheyThink

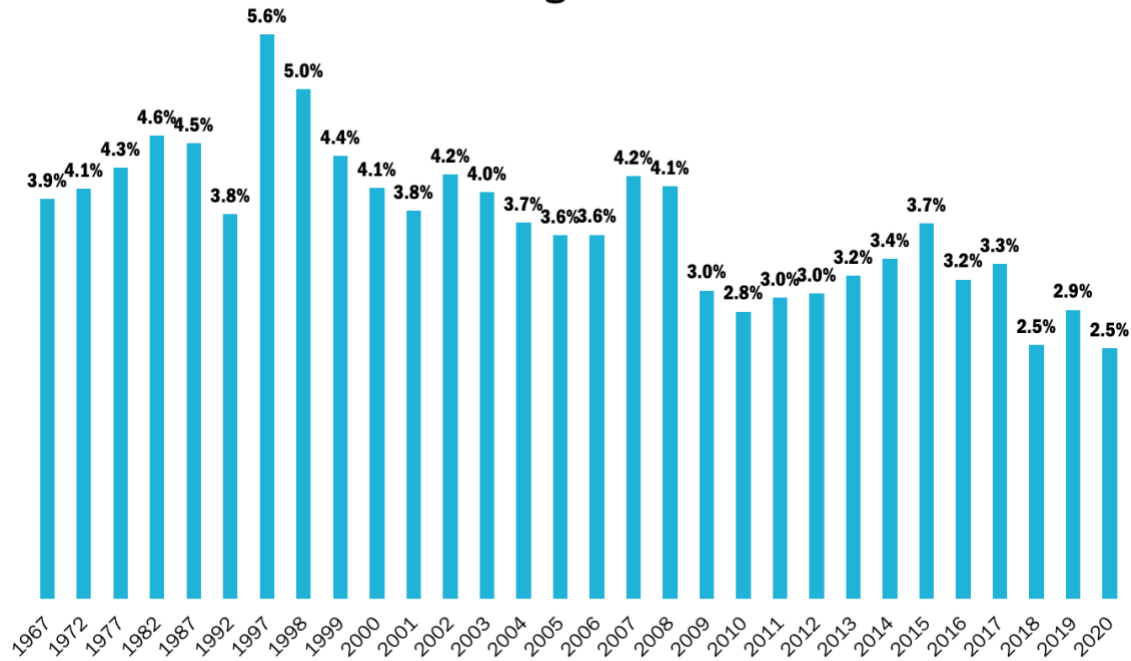
### Capital Expenditures

As we saw in Section 2, print businesses don't have many big investment plans; recall that number one on the Planned Investment list was "we have no planned investments." This differed from last year's survey, where planned spending was up. In those cases where businesses are investing, we are seeing some increased investment plans to increase digital printing capabilities, add new products, and especially expand binding and finishing capabilities, especially on the digital side. And don't forget automation software. As we also mentioned earlier, high interest rates are impeding major capital investment plans.

According to the Census Bureau's *Annual Capital Expenditures Survey in 2021*, about 2.5% of revenues are being spent on capital expenditures—which can also include things like moving or expanding their location.<sup>24</sup> The big spike in 1997 and 1998 represents the effect of PRINT 97, where a slew of digital, Direct Imaging, and computer-to-plate systems was introduced. At PRINTING United 2019, people said it reminded them of PRINT 97, at least in terms of people being excited to be in, and investing in, the printing industry. And although 2019 doesn't show a huge spike, there was a slight climb from 2019 before the inevitable drop in 2020, although that drop was only back to the 2018 level.

<sup>24</sup> The Census Bureau has not updated this data series since 2021.

## Commercial Printing CapEx as Percentage of Revenues



Source: U.S. Census Bureau, 2021 Annual Capital Expenditures Survey

As we learned last year, the Census Bureau no longer breaks out new vs. used equipment, as the information is “suppressed.”<sup>25</sup>

And it may be a moot point; since 2018, the new vs. used ratio showed a dwindling interest in used equipment, the result of a shift to digital. While there is a market for used digital equipment, we don’t expect it to be a very large one, as print businesses generally have the desire, when investing in digital equipment, to have the latest and greatest. Although, as we remarked in the Planned Investments section, we do see increased interest in rebuilding offset equipment. So if they’re not buying used equipment, they’re at least trying to wring a few more years out of the legacy equipment by retrofitting new features onto it.

### Graphic Arts Employment

Although we have been seeing record low unemployment rates in the economy in general, not all industries are recovering from the pandemic at the same rate. (Agriculture, for example, has an unemployment rate of 7.0%, compared to 3.7% nationally.) We’ll look at the overall employment situation in the next section, but here we’ll look at how graphic arts employment has been faring.

As we moved into the fall, printing employment started to drop, although as we moved through the winter, things seemed to be leveling off. Overall printing employment has been essentially flat, being down -0.6% from November to December 2023 (the most recent employment report as this report was being finalized). Production employment was down -1.8% (but down -7.7% from December 2022)

<sup>25</sup> Said the Census Bureau: “The data are withheld (suppressed) to avoid disclosing data for individual enterprises. The data may be included at higher level totals where the individual enterprise’s data is not disclosed due to aggregation.” Why this had not been an issue in the past remains a mystery. Don’t get us started with changes at the Census Bureau...

while non-production employment was up +1.7% from November (but up +3.8% from December 2022).

Overall publishing employment was up +0.1% from November to December 2023, but down -3.8% from December 2022.

Digging into the specific publishing segments (the reporting of which lags a month), employment is also fairly flat: from October to November 2023, periodical publishing employment was down -0.7%, while newspaper publishing employment was unchanged and book publishing employment was up +0.2%.

The creative markets weren't faring much better. Graphic design employment was up +0.3% from October to November 2023, ad agencies were down -0.6%, and public relations was down -1.7%. Direct mail advertising employment was also down -0.9% in November.

Employment in thousands of workers	November 2022	November 2023	Y/Y Change	December 2022	December 2023	Y/Y Change
Printing, all	384.3	373.0	-2.9%	385.5	370.5	-3.9%
Printing, production	265.6	252.2	-5.0%	267.2	247.7	-7.3%
Printing, less production	118.7	120.8	1.8%	118.3	122.8	3.8%
Publishing	954.3	918.4	-3.8%	955.5	919.0	-3.8%
Newspaper, periodical, book, and directory publishers	299.3	284.9	-4.8%	301.2		
Newspaper publishers	93.8	84.0	-10.4%	93.4		
Periodical publishers	72.3	70.7	-2.2%	72.2		
Book publishers	55.2	55.2	0.0%	56.0		
Directory, mailing list, and other publishers	78.0	75.0	-3.8%	79.6		
Graphic design services	59.1	61.0	3.2%	61.3		
Advertising and related services	493.5	505.2	2.4%	493.9	507.5	2.8%
Advertising agencies	228.0	236.5	3.7%	226.9		
Public relations agencies	64.6	63.5	-1.7%	66.1		
Media buying agencies and media representatives	36.9	39.8	7.9%	36.7		
Display advertising	29.9	30.0	0.3%	29.7		
Direct mail advertising	35.7	33.2	-7.0%	36.1		
Advertising material distribution and other advertising services	98.4	102.2	3.9%	98.4		

Source: Bureau of Labor Statistics

### Employees Per Establishment

Our industry demographic data is based on the Bureau of the Census and/or *County Business Patterns* data, which has a two-year lag in data reporting. In the Before Times, this was not a major problem: things change, but not so fast that two years makes much difference. However, 2020 changed all that, such that 2018 might as well be the 19th century. Even including up through 2019, our regular tracking of employees per establishment may be a bit of an anachronism. Still, as we say repeatedly, the pandemic has largely amplified or accelerated trends that were already underway, so most of these data series are still worth looking at. The chart on the next page shows that, indeed, there was a big drop off in employees per establishment from 2020 to 2021—to the lowest it has ever been.

Here's our boilerplate text for this section, which still applies, even if it has accelerated since the pandemic. Every 10 years, there is a sharpish decline in the average number of employees per establishment, and then a period of relative stability. The story behind these periodic declines is one of technology and the gradual elimination of prepress functions as discrete stages of production. Shops still have one or two prepress experts, but they don't need strippers, separators, and platemakers like they used to. Computer-to-plate helped reduce staff, and then digital printing continued that trend. We have also started to see the same kind of thing happening in postpress; not that it is being absorbed into the printing process (although for inline finishing, that can be the case),

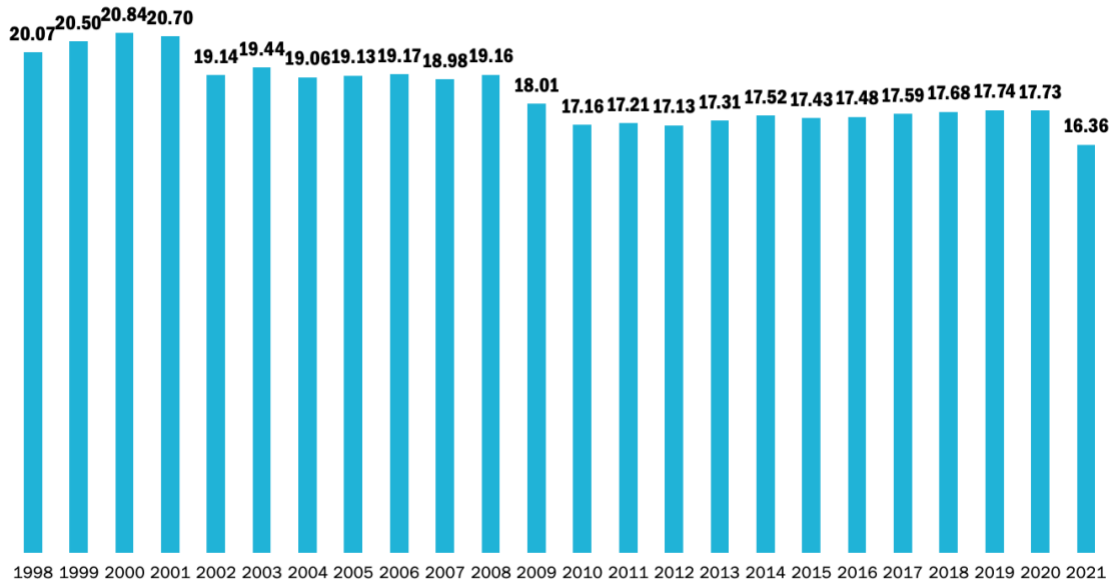
but rather it is increasingly being done in-house instead of outsourced to a specialty finishing house. This is a reflection of the fast-turn nature of today’s jobs. Who has time to send out finishing work anymore? As we have seen in the investments and opportunities data, shops have been adding binding and finishing and, as we saw in recent past surveys, need people to run this equipment. But, as we remarked in the Planned Investments and Hiring Plans sections of this report, as finishing becomes more and more automated, fewer dedicated finishing staff are required—and, in fact, in highly digital shops, one employee can run the press and run the finishing equipment.

The pandemic has accelerated these employment trends and while the chart below—the most recent data for which is from 2021—shows a generally stable, if very gradually increasing, number of employees per establishment until 2020, when there was a major drop.

Prior to the current production staff crisis, there had been a shift in the kinds of employees print businesses are looking for. We saw in pre-2020 survey data that IT and programming employees were highly sought-after. That shifted in the couple of years prior to the pandemic to sales people and some production staff, and as of 2019 to mostly sales people. The last two surveys have seen alteration between primarily production staff (2021), primarily sales people (2022), and now back to primarily production staff (2023).

As automation continues—and as production staff becomes harder to find—we may not see average number of employees per establishment go down, but the composition of those staffs will likely change from being production-centric to sales/marketing/business development- and IT-centric. But as web-to-print and e-commerce continue, shops may find that the nature of print sales is changing and even sales people may not be as in-demand as they currently are, especially if more and more work starts coming in via an online storefront. Sure, a lot of “boutique” and bespoke printing work and complex projects may still come in through traditional sales routes, but more and more commodity print will come in via an online portal—or should.

### Average Number of Employees per Establishments US Commerical Printing (NAICS 323) 1998–2021

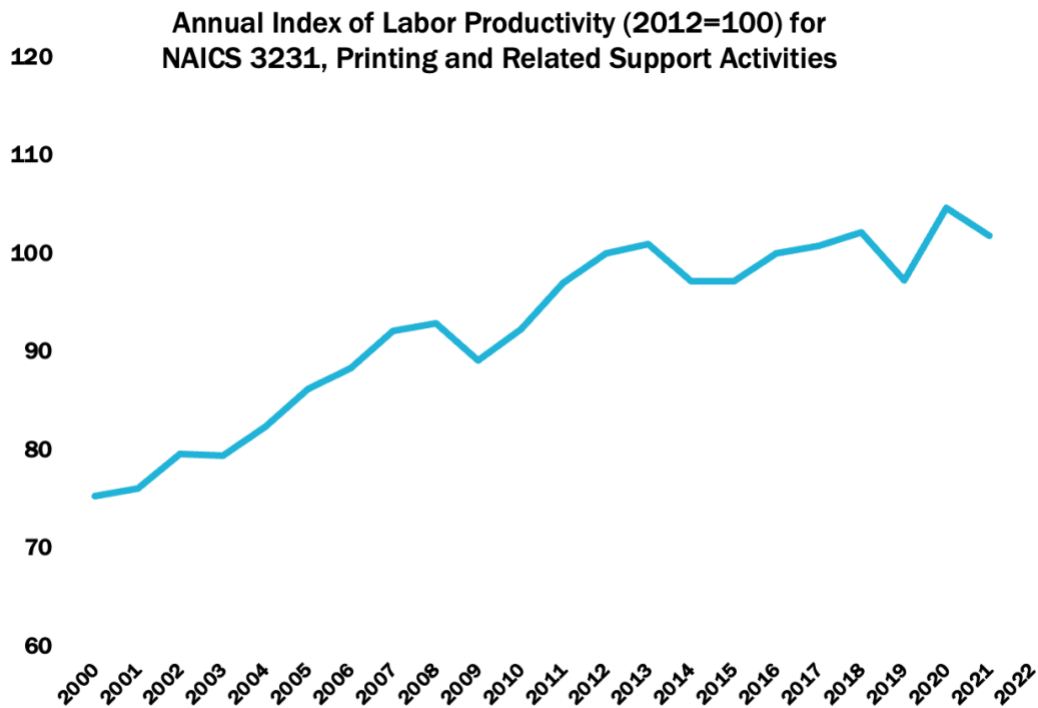


**WhatTheyTh!nk**  
Source: County Business Patterns

### Productivity

A traditional challenge for the industry has been “increasing productivity” and if we look at the BLS’s productivity data for NAICS 3231 (Printing and Related Activities), we see that productivity had been on the rise in the industry until about 2018, when it took a tumble, climbed again, and then dropped again in 2022. Productivity can be somewhat of a gauge of automation, although not a 100% reliable one. If we look at the period from 2015 to 2017/2018, we saw productivity rise even as the average number of employees per establishment remained relatively stable. The drop in productivity in 2018 likely reflects the pre-pandemic challenge of finding production workers—and recall how “increasing plant productivity” was always a top challenge. The post-pandemic rise in productivity likely reflected the recent trend toward at least partial automation, but remember how in Hiring Plans, companies were more interested in hiring production staff than in the last survey? This is where it is showing up in industry data.

It’s funny: there has been a worry in the general economy that automation will displace workers—and it would be quite the luxury if we had that problem. In the printing industry, we have the opposite problem: we need automation because we can’t find humans, at least for production jobs.



## WhatTheyTh!nk

Source: Bureau of Labor Statistics

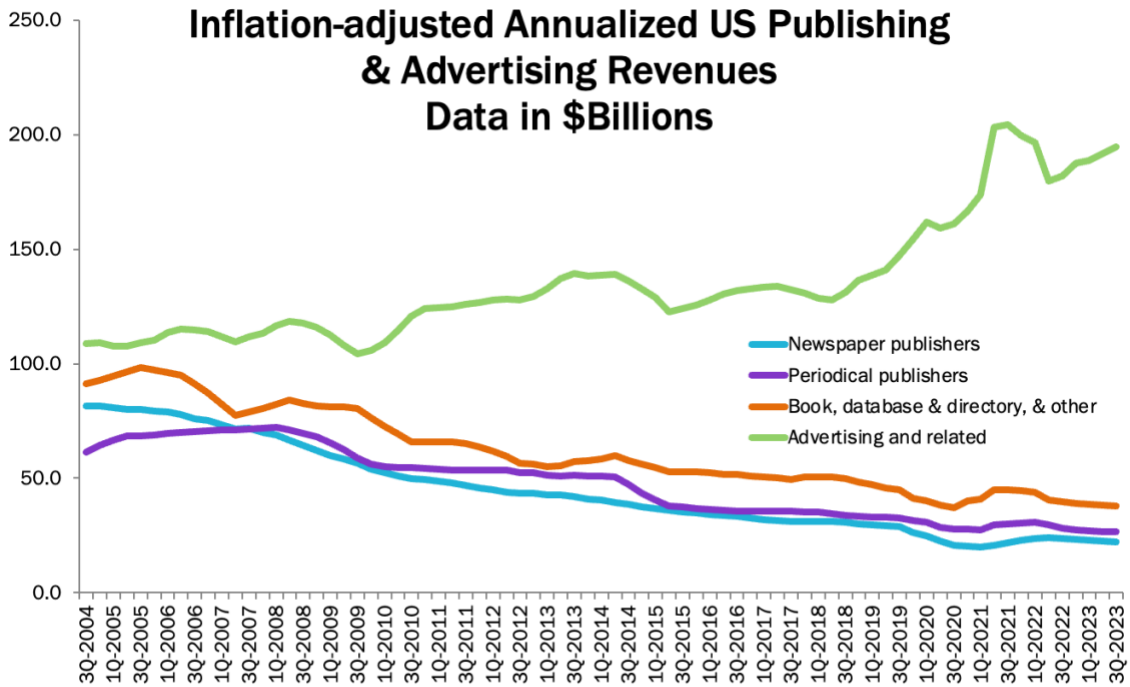
For a while, we had been saying that automation was like the weather: everyone talks about but no one ever does anything about it. There has a lot of interest in automation, but a definition of what it entails can vary from person to person, as we saw in Section 5. We commented at length on the topic back there, but, suffice to say here, automation changes the nature of the employees that are sought. The erosion of prepress as a specific step in the production process changed the demand for prepress employees to press operators and/or binding and finishing employees. Automating these processes now shifts the demand to things like sales and business development. Web-to-print doesn’t as yet appear to have any impact on the demand for sales people in the industry, although we fully expect that to change, especially post-pandemic. (Yeah, we’ve been saying that for years and at some point we’ll be right!) And remember, there are some very successful print businesses that don’t have any

salespeople. They rely on highly effective search engine optimization (SEO) strategies to attract Googlers to a Web-to-print site, where customers may never have any actual interaction with an employee of the printing company. After all, this is the way people increasingly like to buy things. This doesn't mean that those businesses don't have any employees; instead of salespeople they have programmers, Internet search experts, and customer service personnel for when there are questions or problems. This is a good thing; these are highly desirable jobs, especially on the part of younger people, and looking for software developers and search experts may help attract new blood to the industry.

### Publishing and Advertising

Publishing has generally been having a rough time during the pandemic. In 2020, newspapers and to a slightly lesser degree periodicals saw advertising dry up, as local businesses—newspapers' primary advertising base—have been closed or struggling, although that had been alleviating as businesses have opened back up (newspaper revenues were almost back to pre-pandemic levels but have since plateaued). A bright spot during the pandemic was book publishing, which saw sales and revenues rise during the pandemic, reflected in the chart below, although that now appears to have plateaued and started a slow decline.

The figure below rounds up the latest revenue data for the various publishing segments as well as ad agencies. On an annualized basis, since 2004, newspaper publishing revenues have plummeted by more than \$50 billion. Periodical publishers aren't in much better shape and 2023 saw them on a downward trajectory. Advertising fell in early 2020, spiked, then dropped again, but has been on an upward trend in 2023.



## WhatTheyTh!nk

Source: US Census Bureau: Quarterly Services Survey

Advertising revenues had flattened out over the course of the 2010s, which reflected the fact that revenues for the venues that used to feature a lot of advertising—periodicals and newspapers—have dropped, in turn indicative of perhaps not just a shift to non-print forms of advertising, but other kinds of marketing initiatives than what we think of as “advertising.” A lot of it is content marketing, a

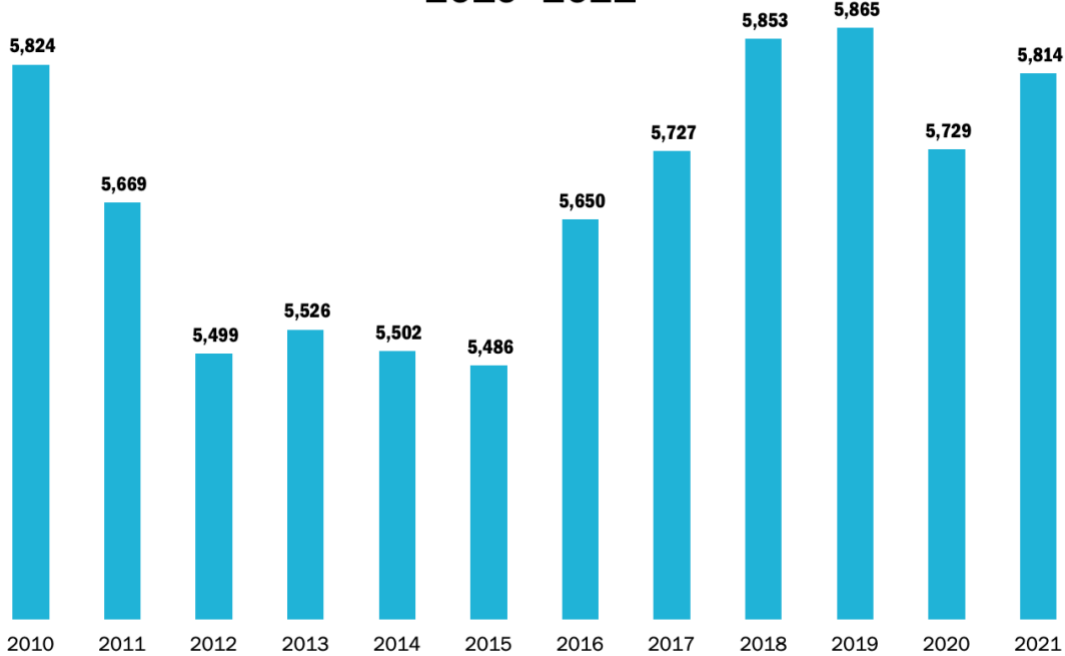
greater reliance on social media and other forms of digital marketing, and smarter use and negotiation of cable and TV. While traditional TV audiences are smaller, people continue to cut the cord faster, and streaming is the “new cable”—and largely advertising-free, as people are willing to pay extra for commercial-free versions of streaming services like Hulu, Disney+, and the other umpteen million other streaming services that have launched in the last couple of years. However, it’s possible streaming has hit a wall and Netflix, to name one, has been tracking slower growth. The introduction of advertising-based service tiers has not been a success, and people remain happy to pay a premium to not watch ads. There is no shortage of advertising on other platforms such as Spotify, YouTube, and other services that have both ad-supported (free) and premium (ad-free) options. Indeed, there are becoming precious few places where there is no advertising.

## Sign Manufacturing

### Establishments

Over the course of the 2010s, manufacturing establishments had been climbing, with the loss of 100 or so establishments in 2020, which nearly entirely rebounded in 2021.

**NAICS 33995 Sign Manufacturing Establishments, 2010–2021**

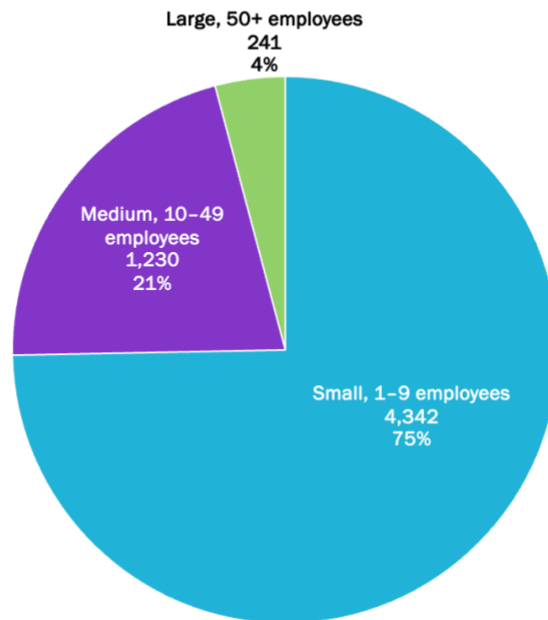


Source: County Business Patterns

Of the 5,813 establishments in NAICS 33995 (Sign Manufacturing), 75% are small establishments, 21% are mid-size, and 4% are large.

## US Sign Manufacturing Establishments by Number of Employees, 2021

**Total Establishments: 5,813**

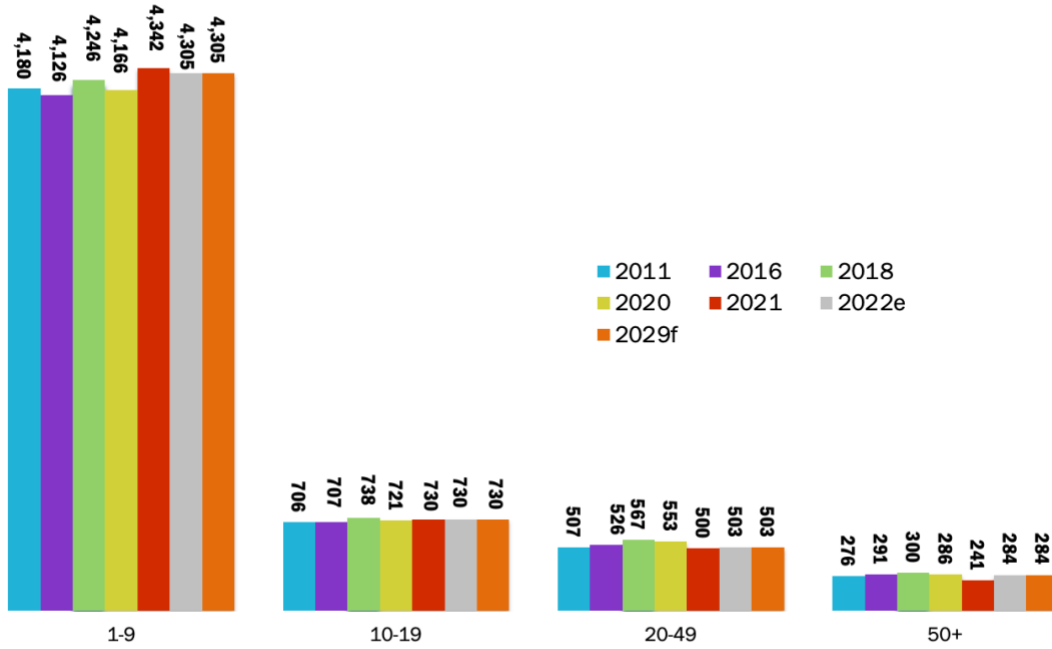


**WhatTheyTh!nk**

Source: County Business Patterns

The figure below looks at the historical number of establishments, and includes our 2029 projection. Unlike what we tend to see with commercial printing, based on historical trends, we anticipate the overall number of establishments to stay fairly steady.

### Change in US Sign Manufacturing Establishments by Number of Employees, 2001-2029

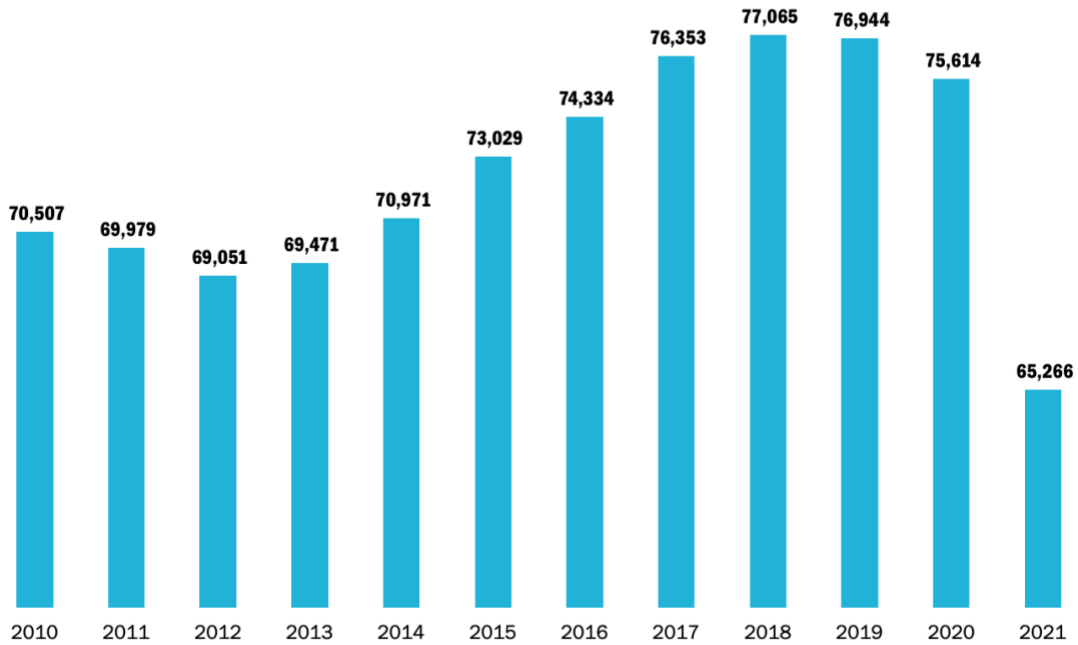


Source: County Business Patterns; WhatTheyThink calculations

### Employment

In terms of employment, according to County Business Patterns, overall employment has dropped precipitously in 2021. This would be the pandemic in action.

### Number of Sign Manufacturing Employees (NAICS 33995), 2010–2021

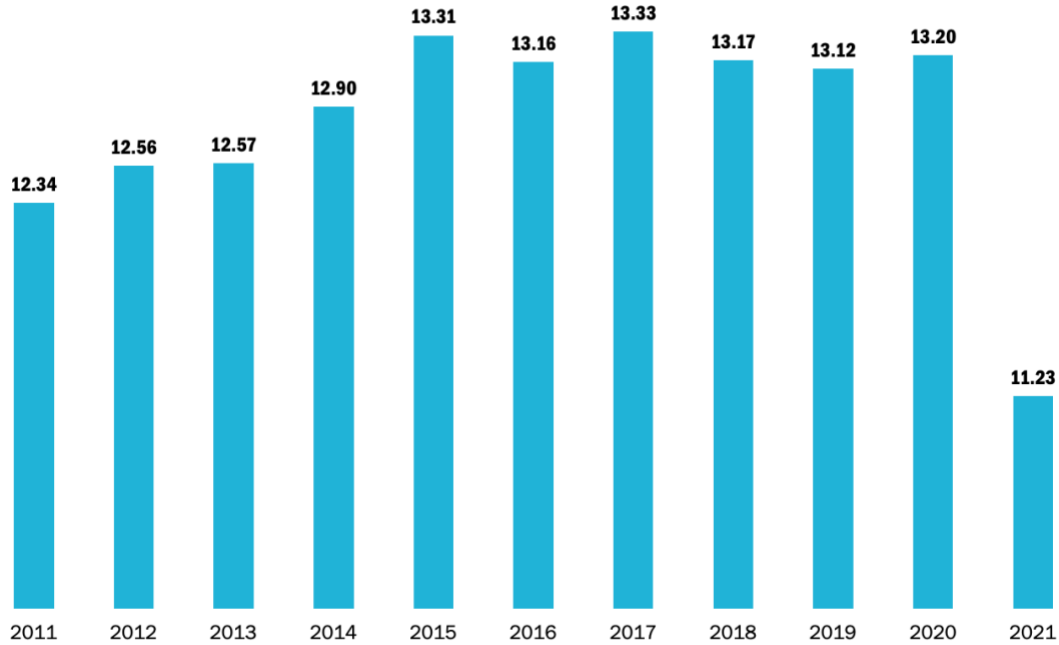


### WhatTheyTh!nk

Source: County Business Patterns

Over the course of the past decade, employees per establishments had been fairly stable, rising from 12.34 employees per establishment in 2011 to 13.20 as 2020 began, then dropped to 11.23 in 2021. As we saw above, establishments rebounded in 2021, but employment did not.

### Average Number of Employees per Establishments US Sign Manufacturing (NAICS 33995) 2011-2021



Source: County Business Patterns

#### Productivity

Since 2016, productivity in sign manufacturing has been on a downward slope. Sign manufacturing by its very nature resists the kind of automation we find in commercial printing—sign manufacturing is still very much a labor-intensive process. The decline in productivity likely represents an increase in signage projects with (as we saw above) a stable number of employees. Productivity ticked up in 2020 and 2021.



**WhatTheyTh!nk**

Source: Bureau of Labor Statistics

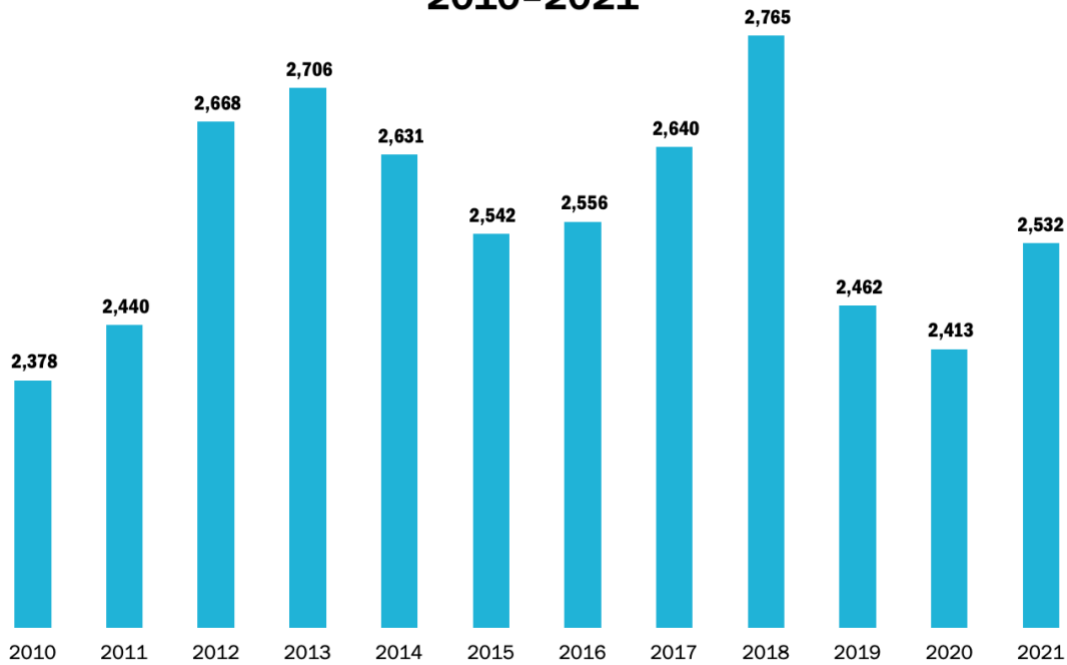
## Outdoor Advertising

Related to sign manufacturing is outdoor advertising, which more akin to an ad agency—it is located in a service NAICS rather than a manufacturing NAICS.

### Establishments

Over the course of the 2010s, outdoor advertising establishments had been climbing, but dropped off in 2019 and 2020, and rebounded in 2021.

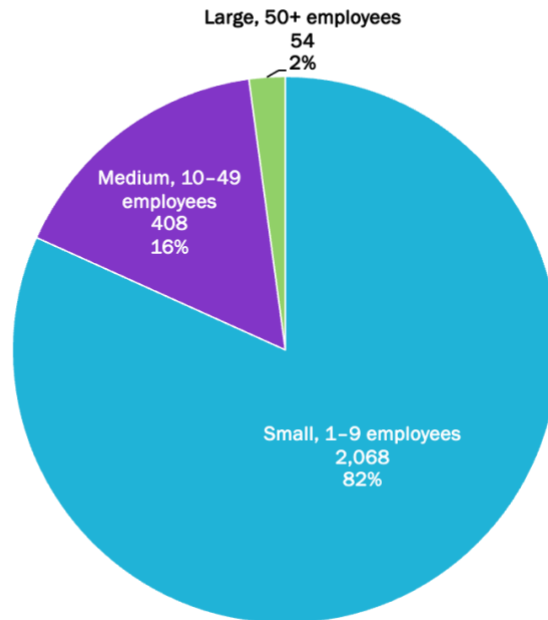
**NAICS 54185 Outdoor Advertising Establishments, 2010–2021**



Source: County Business Patterns

Of the 2,532 establishments in NAICS 54185 (Outdoor Advertising) in 2021, 82% are small establishments, 16% are mid-size, and 2% are large.

### US Outdoor Advertising Establishments by Number of Employees, 2021 Total Establishments: 2,532



Source: County Business Patterns

The figure below looks at the historical number of establishments, and includes our 2029 projection. Unlike what we tend to see with commercial printing, based on historical trends, we anticipate the overall number of establishments to stay fairly steady if not increase at the small end of the establishment spectrum. We expect outdoor to be a growth area, especially as dynamic digital signage continues to grow in the outdoor advertising space.

### Change in US Outdoor Advertising Establishments by Number of Employees, 2011-2029

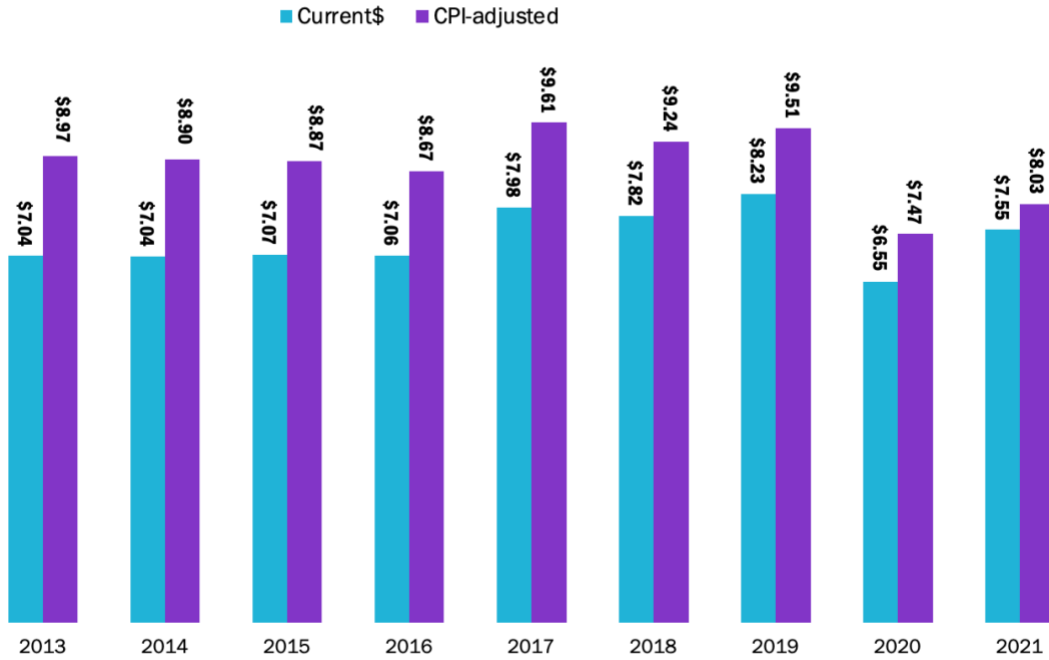


Source: County Business Patterns; WhatTheyThink calculations

### Revenue

On an inflation-adjusted basis, outdoor advertising revenues grew steadily over the course of the 2010s, but, not unexpectedly, dropped in 2020, with a rebound in 2021.

## Outdoor Advertising Revenue, 2013–2021 (\$billion)

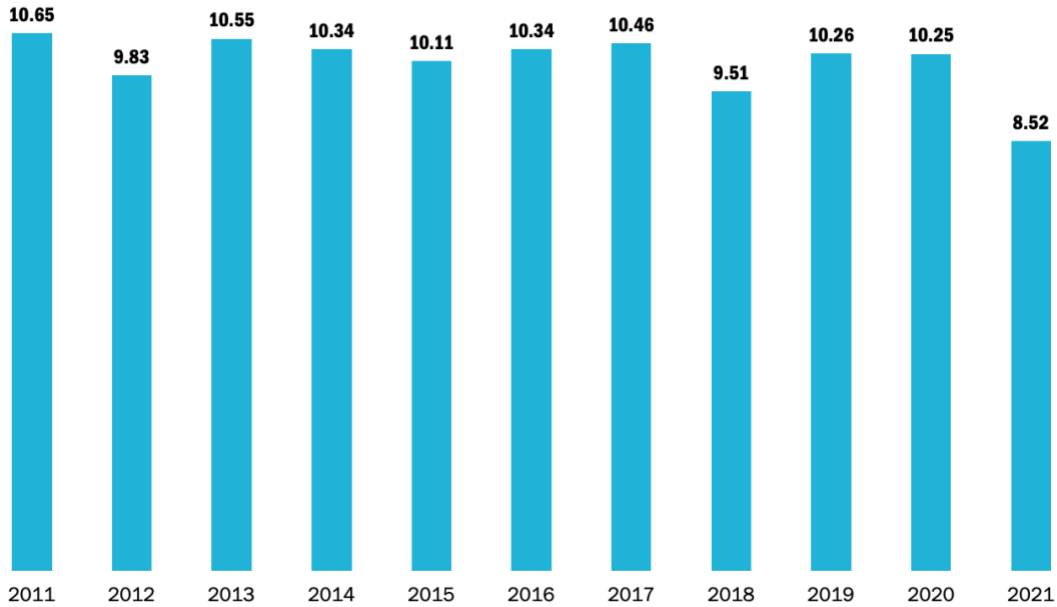


Source: Federal Reserve Bank of St. Louis

### Employment

Over the course of the past decade, employees per establishments have been fairly stable, although there is a bit of noise in this data series, with a drop in 2012 and 2018. Again, the y-axis makes it look more dramatic than it is (a drop by one employee per establishment). As we saw above, there was an increase in small establishments in 2018. Overall employment did not increase correspondingly, so the same numerator with a larger denominator would yield a lower employee-per-establishment count.

### Average Number of Employees per Establishments US Outdoor Advertising (NAICS 54185) 2011–2021



Source: County Business Patterns

According to the Bureau of Labor Statistics, In October 2023, 77,300 people were employed in the sign manufacturing establishments, 44,400 of them in production and 32,900 in the “carpeted” area of the business. Month over month, that works out to a -0.6% decrease in overall sign employment from September to October (and -3.3% year over year), -2.0% decrease in production employees from September to October (down -5.9% year over year), and a +1.2% increase in non-production employees (up +0.6% year over year).

Employment in thousands of workers	September 2022	September 2023	Y/Y Change	October 2022	October 2023	Y/Y Change
Signs, all	79.1	77.8	-1.6%	79.9	77.3	-3.3%
Signs, production	46.1	45.3	-1.7%	47.2	44.4	-5.9%
Signs, less production	33.0	32.5	-1.5%	32.7	32.9	0.6%
Display advertising	30.9	30.2	-2.3%	29.9	30.0	0.3%

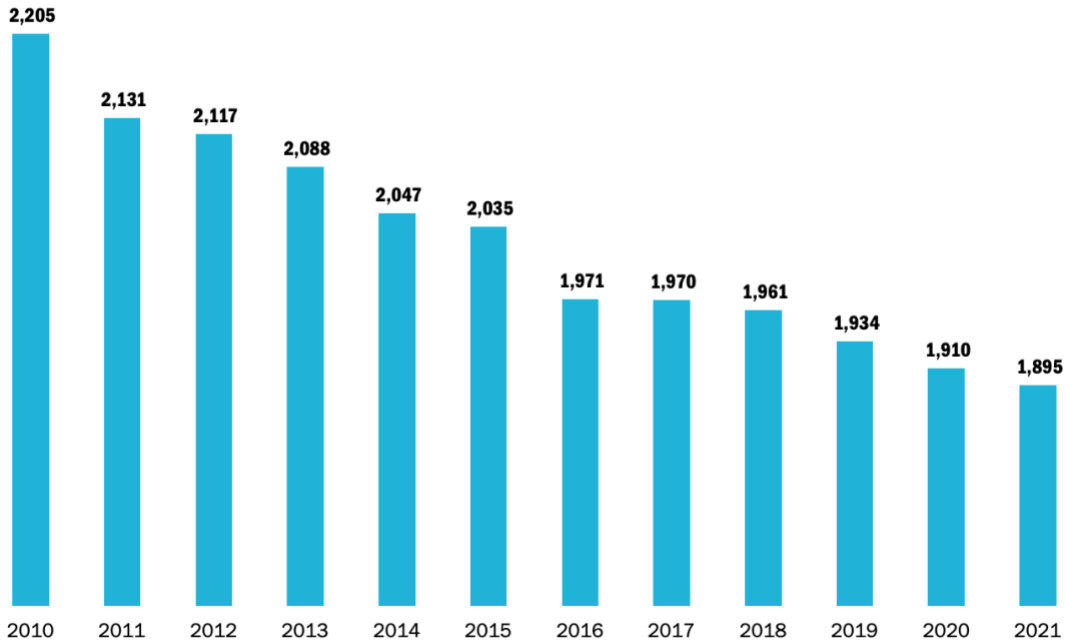
Source: Bureau of Labor Statistics

### Packaging and Converting

In this section, we'll look at some establishments, employment, and value of shipments for several packaging and converting NAICS.

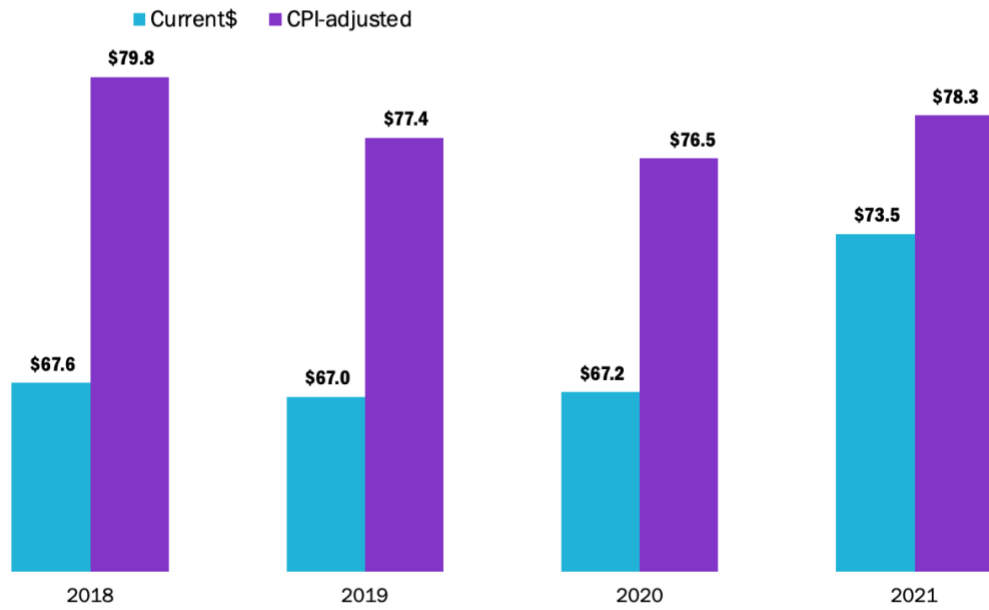
#### Paperboard Container Manufacturing

### NAICS 32221 US Paperboard Container Manufacturing Establishments, 2010–2021



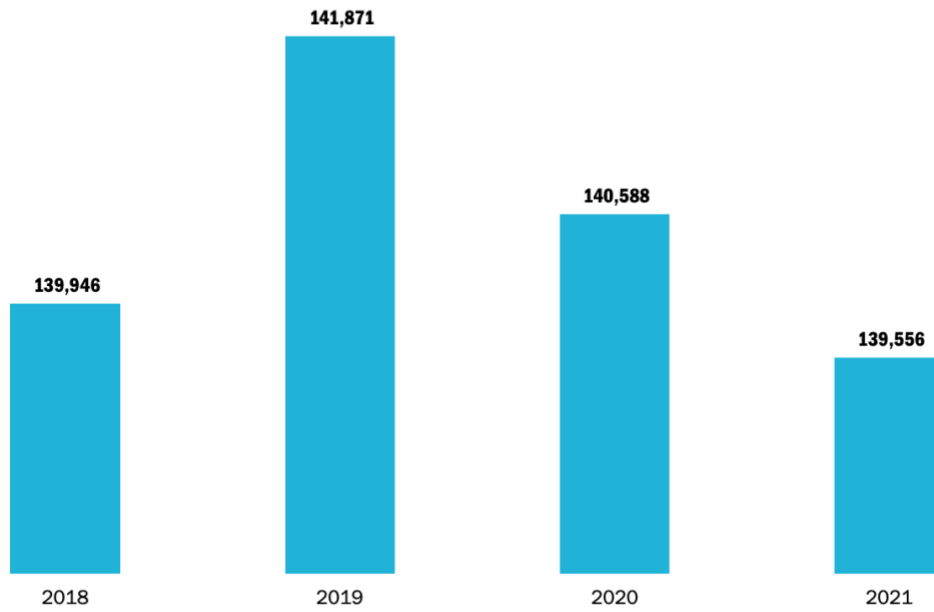
Source: County Business Patterns

### NAICS 32221 Paperboard Container Manufacturing Shipments, 2018–2021 (\$billion)



Source: Annual Survey of Manufactures, US Bureau of the Census

### NAICS 32221 Paperboard Container Manufacturing Employees, 2018–2021

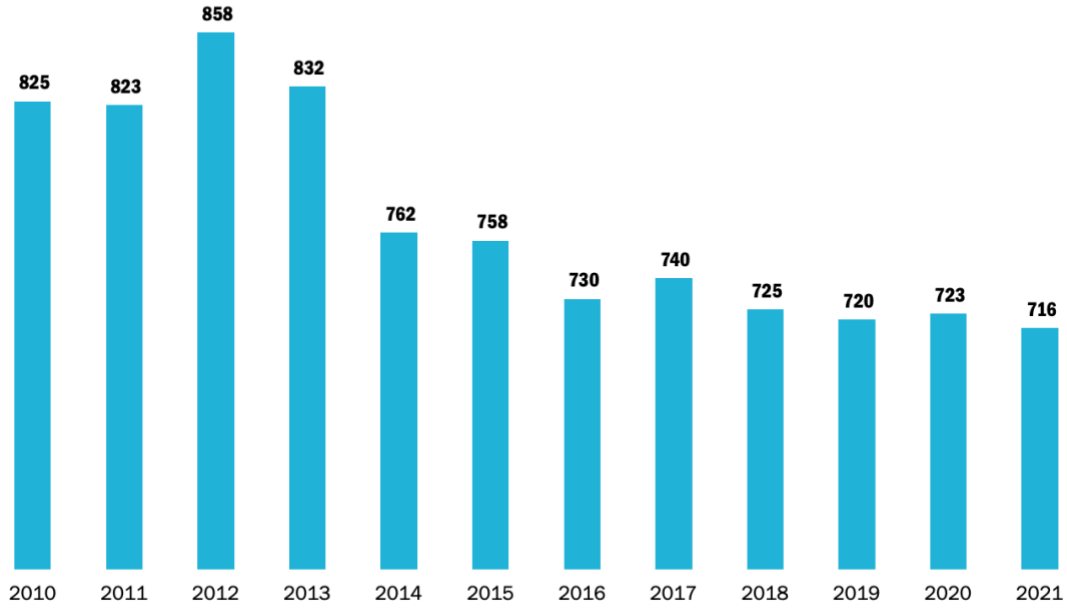


**WhatTheyTh!nk**

Source: Annual Survey of Manufactures

Paper Bag and Coated and Treated Paper Manufacturing

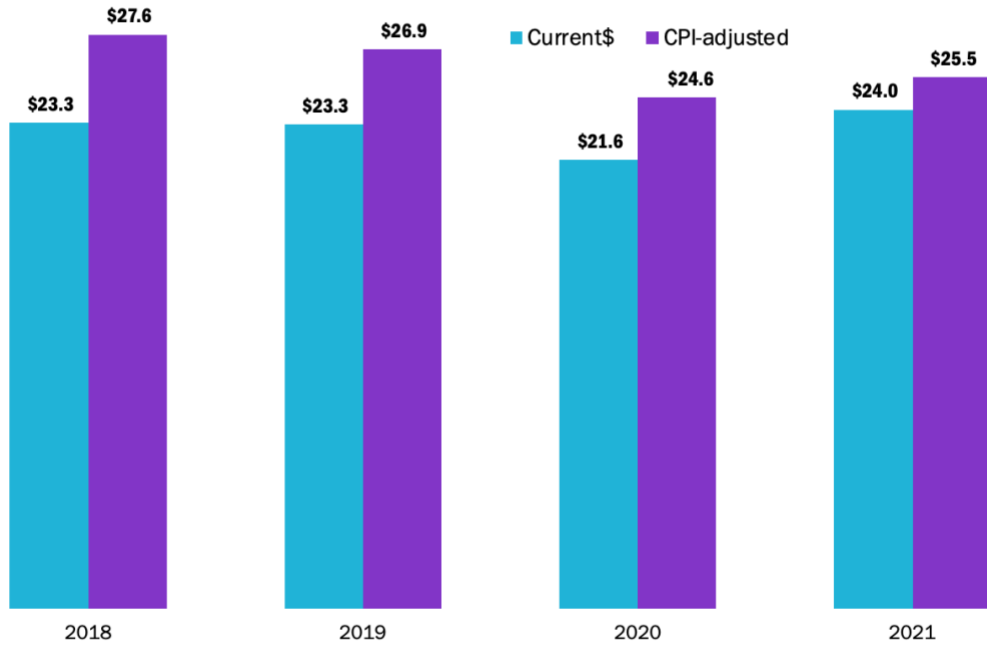
**NAICS 32222 US Paper Bag and Coated and Treated Paper Manufacturing Establishments, 2010-2021**



**WhatTheyTh!nk**

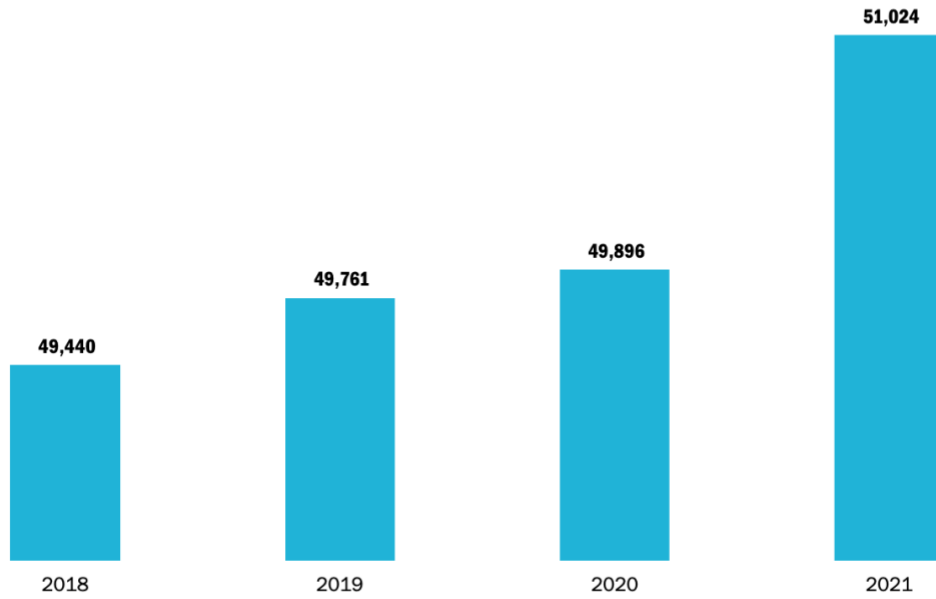
Source: County Business Patterns

### NAICS 32222 Paper Bag and Coated and Treated Manufacturing Shipments, 2018–2021 (\$billion)



Source: Annual Survey of Manufactures, US Bureau of the Census

### NAICS 32222 Paper Bag and Coated and Treated Manufacturing Employees, 2018-2021

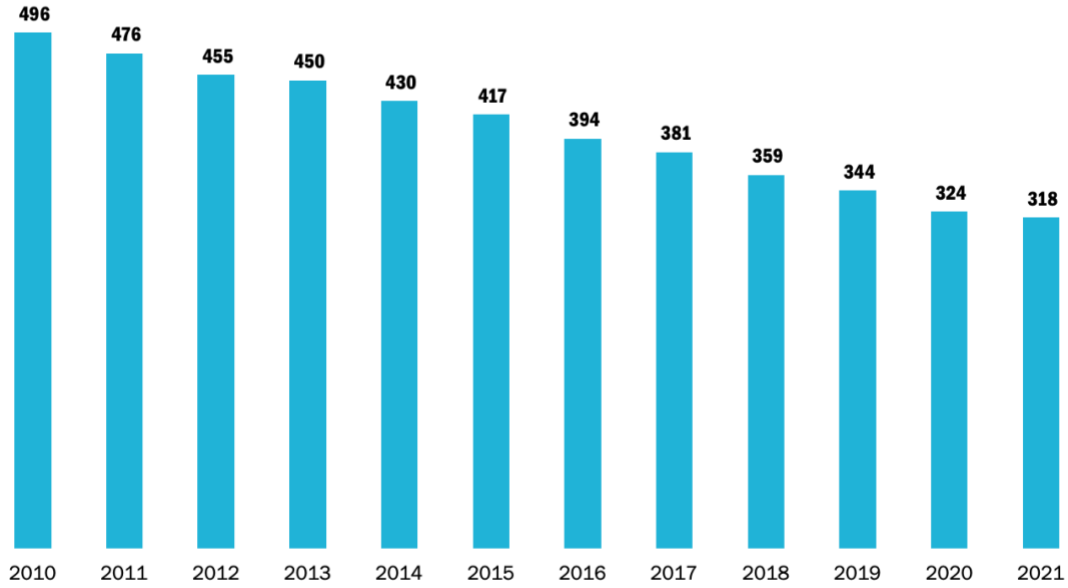


**WhatTheyTh!**nk

Source: Annual Survey of Manufactures, US Bureau of the Census

Stationery Product Manufacturing

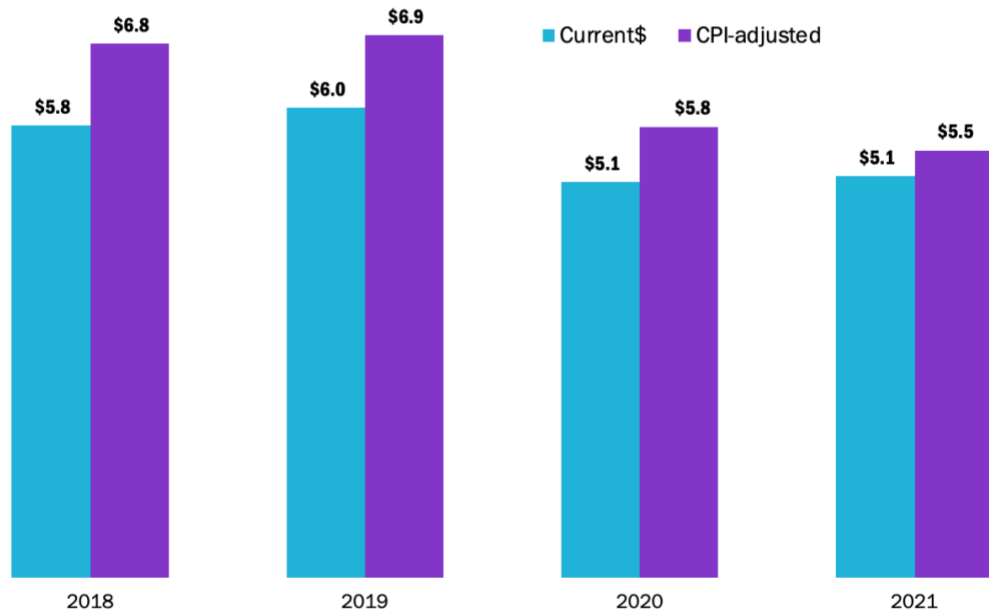
**NAICS 32223 US Stationery Product Manufacturing Establishments, 2012-2021**



**WhatTheyTh!nk**

Source: County Business Patterns, 2021, US Bureau of the Census

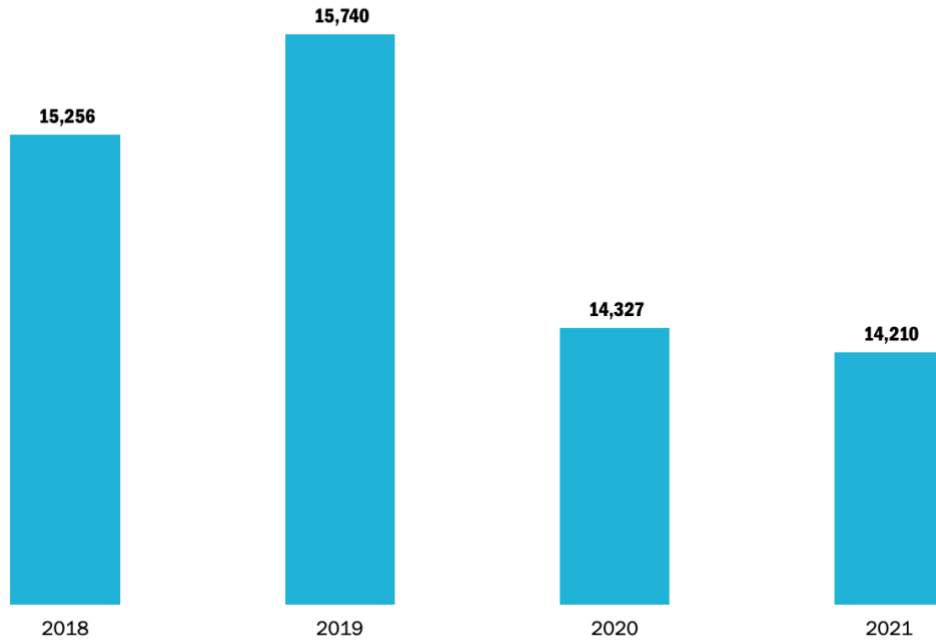
### NAICS 32223 Stationery Product Manufacturing Shipments, 2018–2021 (\$billion)



**WhatTheyTh!nk**

Source: Annual Survey of Manufactures, US Bureau of the Census

### NAICS 32223 Stationery Product Manufacturing Employees, 2018–2021

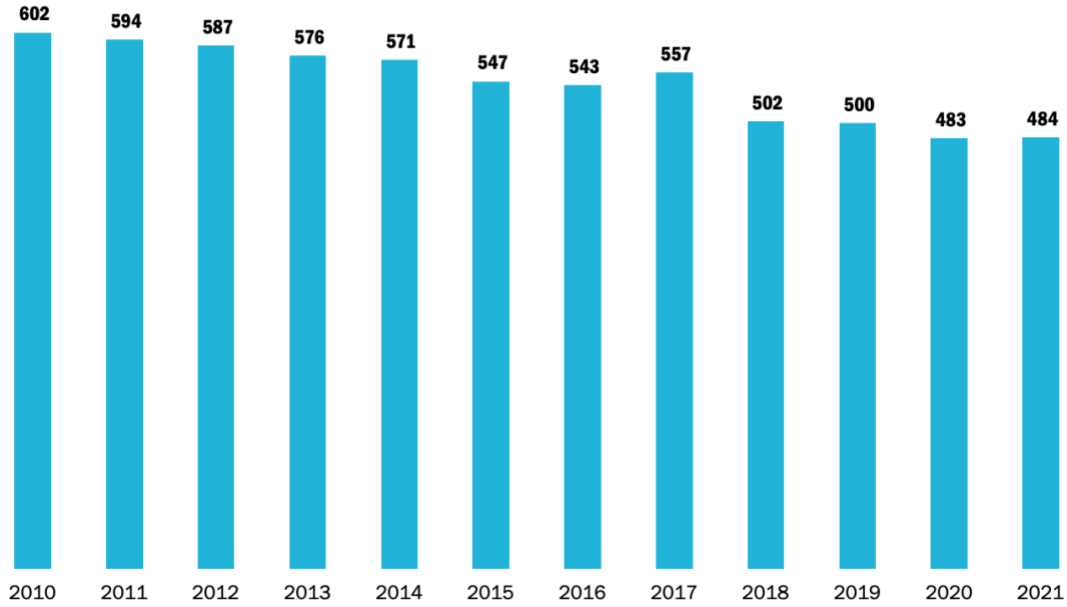


**WhatTheyTh!nk**

Source: Annual Survey of Manufactures, US Bureau of the Census

Other Converted Paper Product Manufacturing

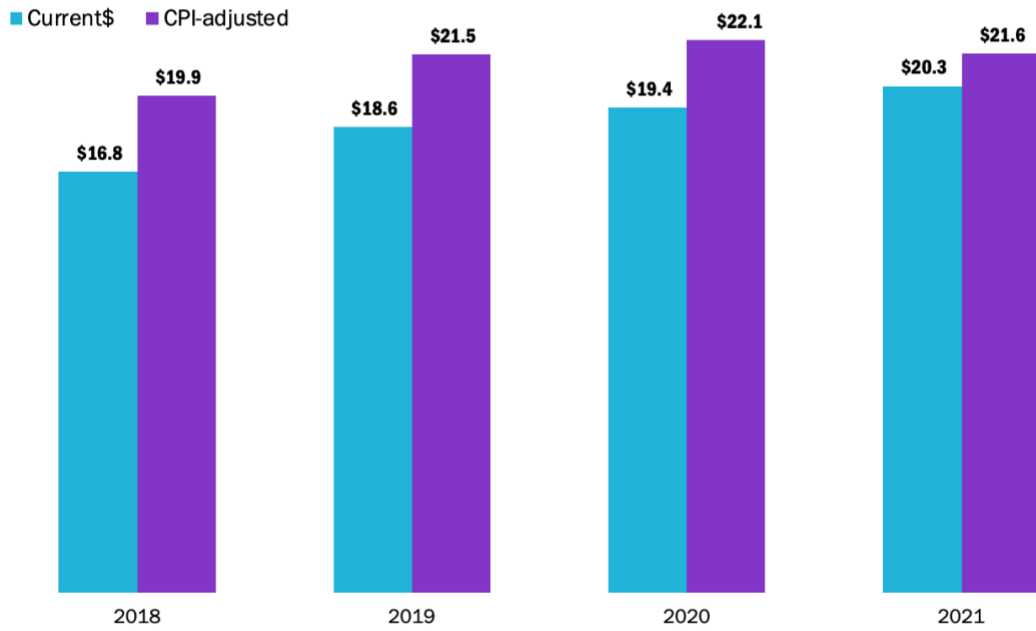
**NAICS 32229 Other Converted Paper Product Manufacturing Establishments, 2010-2021**



**WhatTheyTh!nk**

Source: County Business Patterns

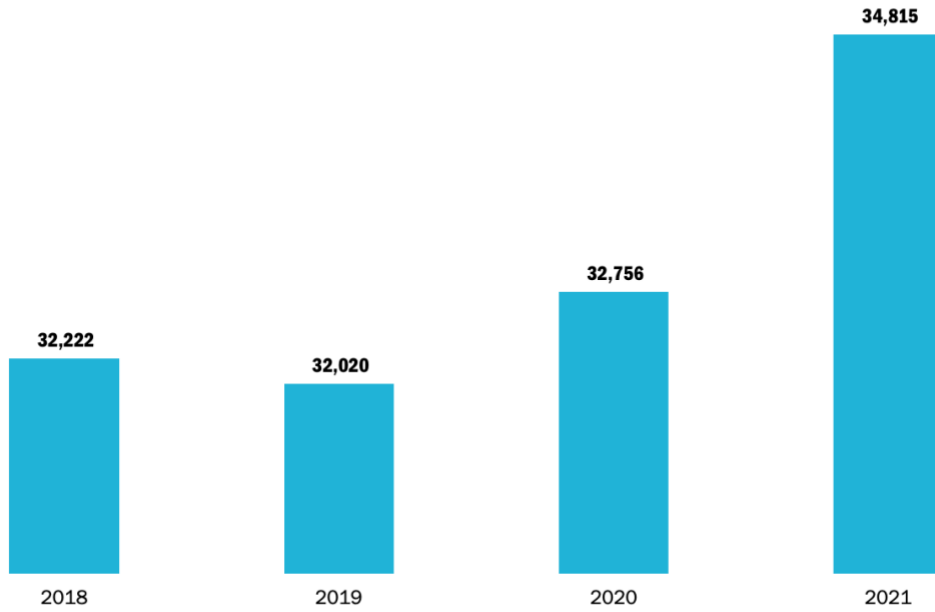
### NAICS 32229 Other Converted Paper Product Manufacturing Shipments, 2018–2021 (\$billion)



**WhatTheyTh!nk**

Source: Annual Survey of Manufactures, US Bureau of the Census

### NAICS 32229 Other Converted Paper Product Manufacturing Employees, 2018–2021

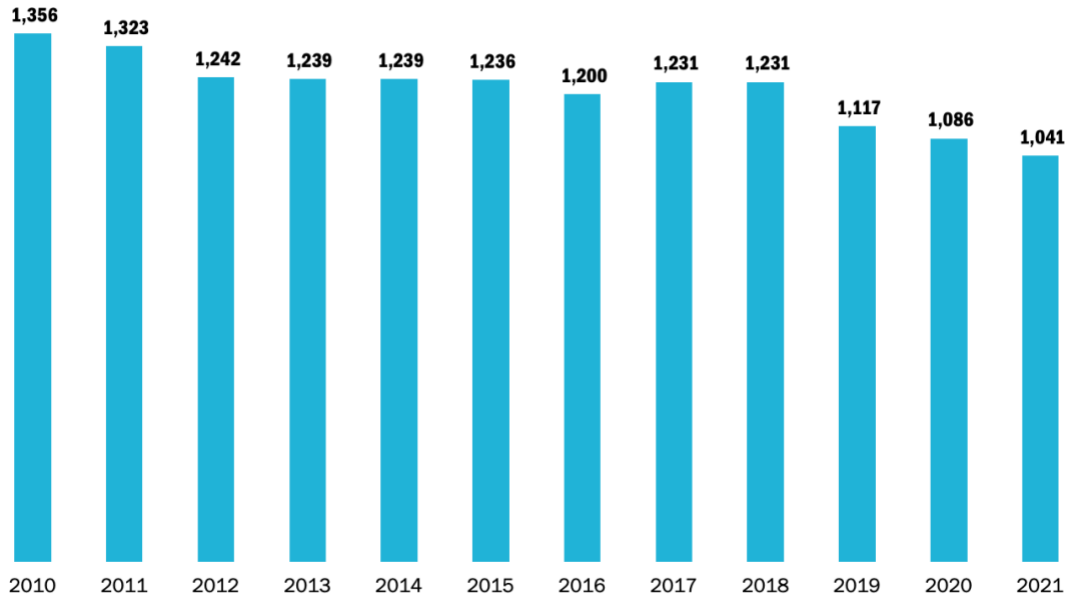


**WhatTheyTh!nk**

Source: Annual Survey of Manufactures, US Bureau of the Census

Corrugated and Solid Fiber Box Manufacturing

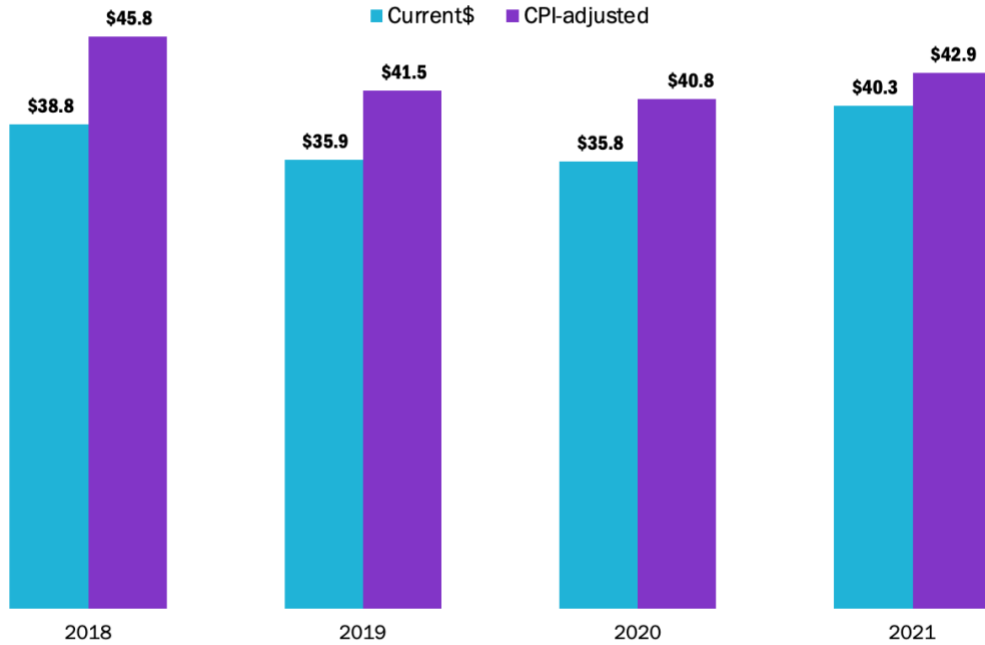
**NAICS 322211 Corrugated and Solid Fiber Box Manufacturing Establishments, 2010-2021**



**WhatTheyTh!nk**

Source: County Business Patterns

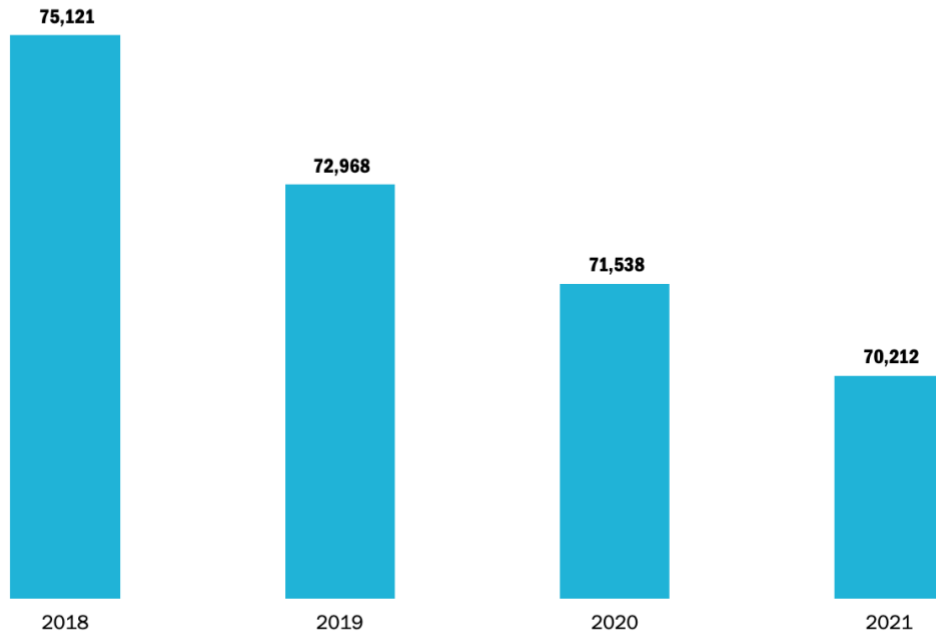
### NAICS 322211 Corrugated and Solid Fiber Box Manufacturing Shipments, 2018-2021 (\$billion)



**WhatTheyTh!nk**

Source: Annual Survey of Manufactures, US Bureau of the Census

### NAICS 322211 Corrugated and Solid Fiber Box Manufacturing Employees, 2018–2021

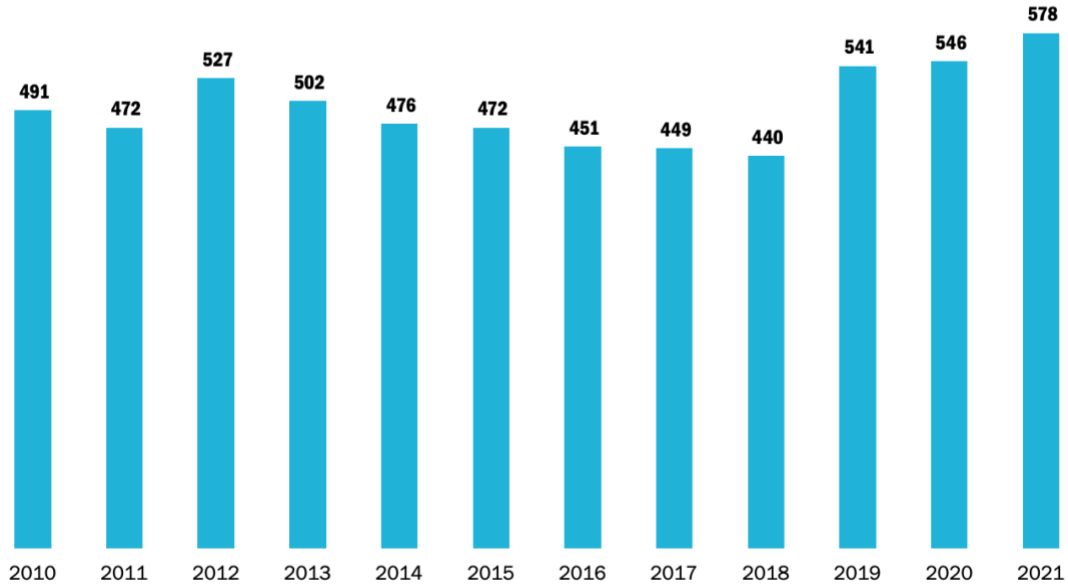


**WhatTheyTh!nk**

Source: Annual Survey of Manufactures, US Bureau of the Census

Folding Paperboard Box Manufacturing

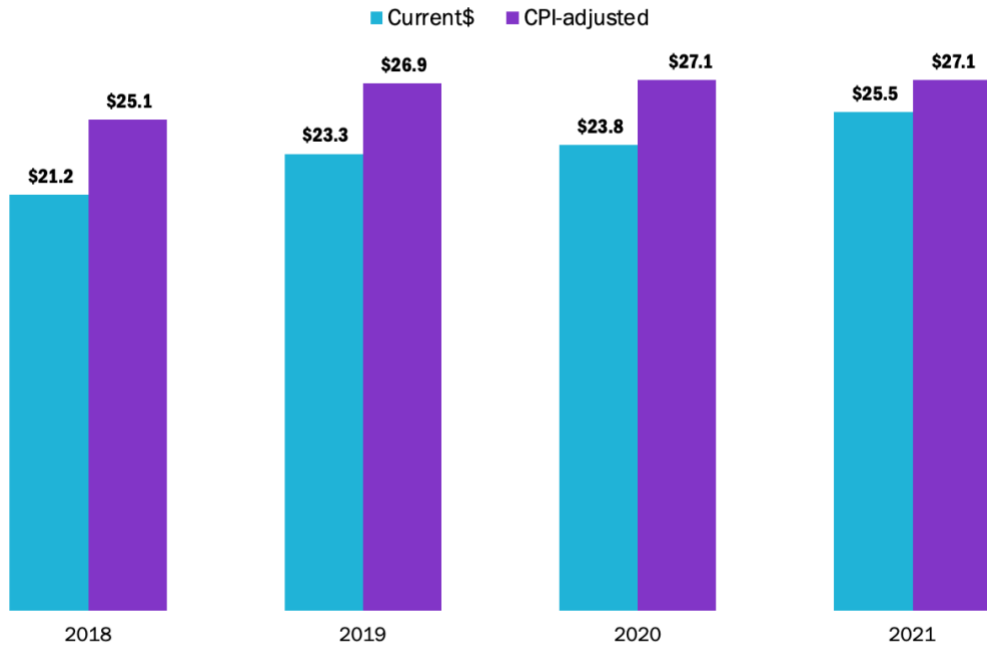
**NAICS 322212 US Folding Paperboard Box Manufacturing Establishments, 2010–2021**



**WhatTheyTh!nk**

Source: County Business Patterns

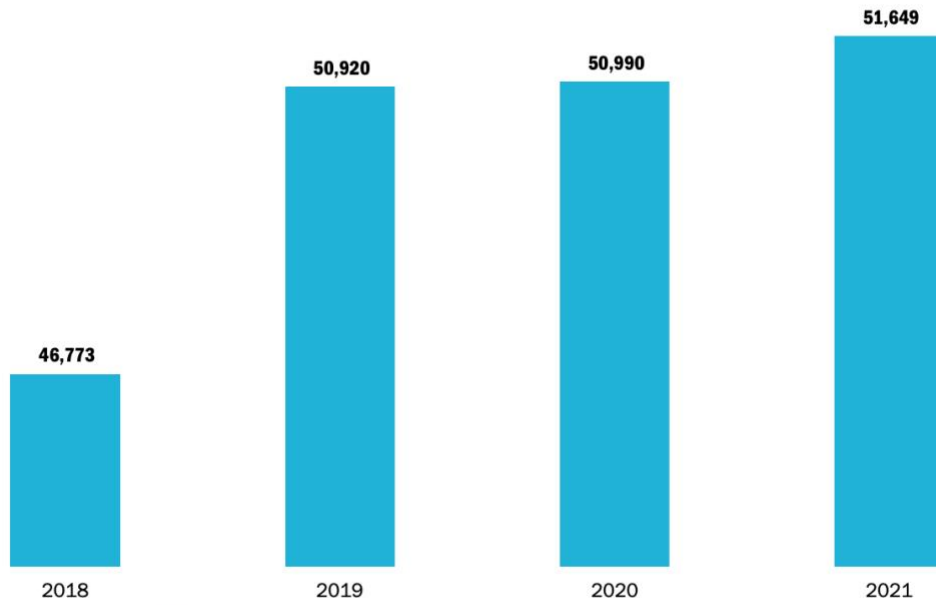
### NAICS 322212 Folding Paperboard Box Manufacturing Shipments, 2018–2021 (\$billion)



**WhatTheyTh!nk**

Source: Annual Survey of Manufactures, US Bureau of the Census

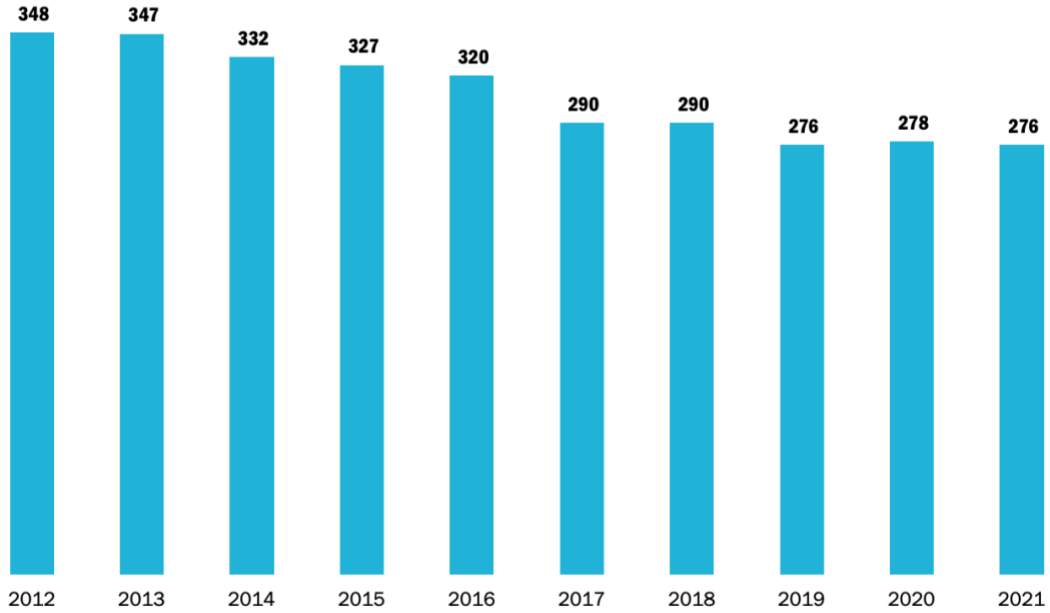
### NAICS 322212 Folding Paperboard Box Manufacturing Employees, 2018-2021



Source: Annual Survey of Manufactures, US Bureau of the Census

Other Paperboard Container Manufacturing

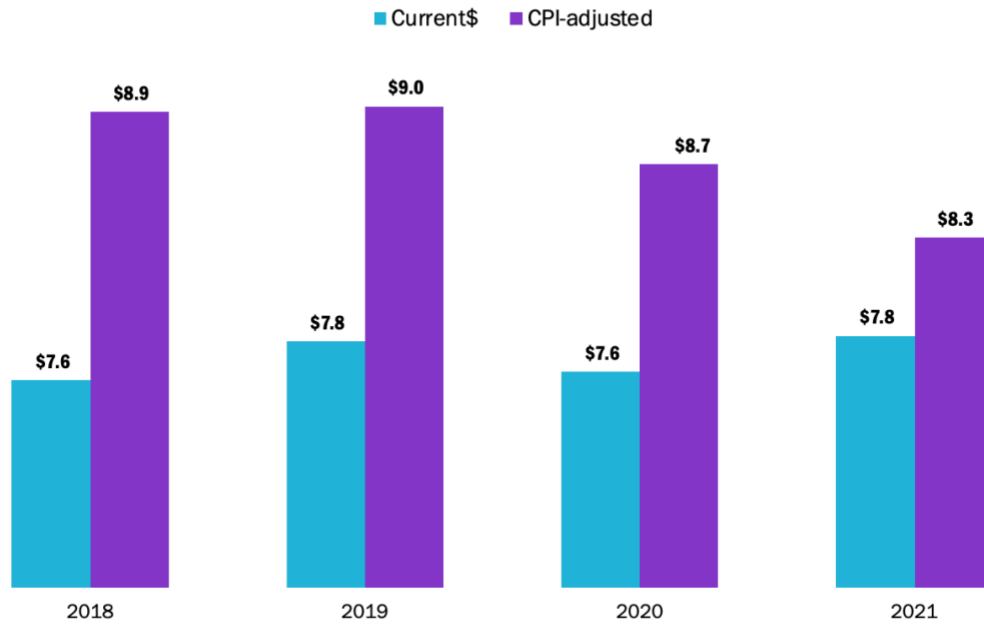
**NAICS 322219 US Other Paperboard Container Manufacturing Establishments, 2012-2021**



**WhatTheyTh!nk**

Source: County Business Patterns

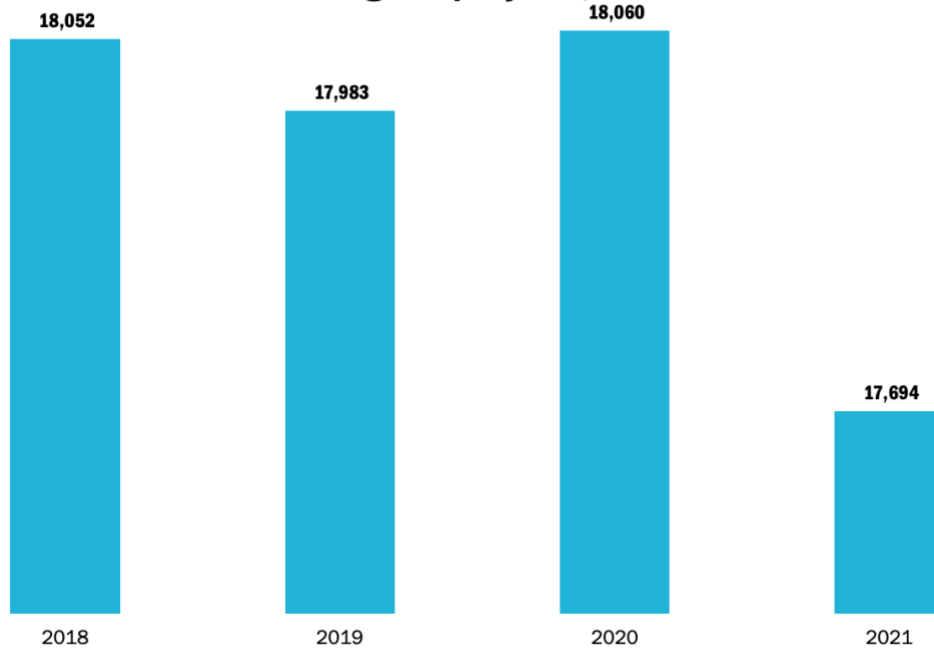
### NAICS 322219 Other Paperboard Container Manufacturing Shipments, 2018–2021 (\$billion)



**WhatTheyTh!**nk

Source: Annual Survey of Manufactures, US Bureau of the Census

### NAICS 322219 Other Paperboard Container Manufacturing Employees, 2018-2021



Source: Annual Survey of Manufactures, US Bureau of the Census

#### Looking Forward

In the next section, we'll zoom out (if you're not sick of Zoom) and have a look at me macroeconomic data, to give us some context for the industry data. Then we'll look at current trends and our forecast.

## 8. MACROECONOMIC DATA

In this section, we take a look at the general economy. Despite doom and gloom pronouncements on cable news and social media, the economy has actually been performing exceedingly well.

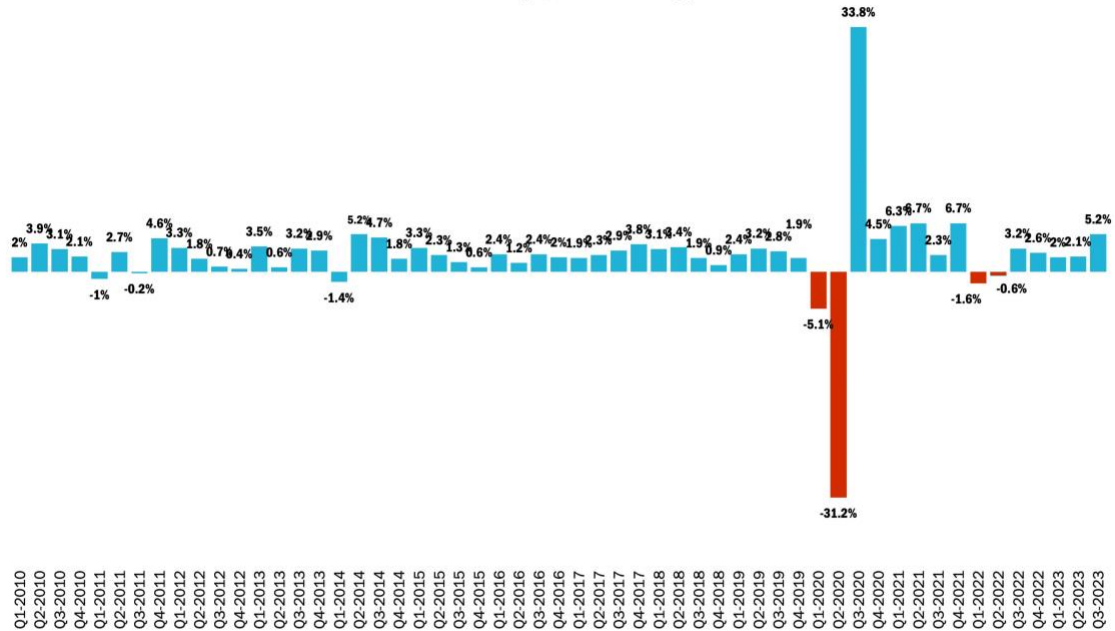
### GDP

Said the BEA in November 2023:<sup>26</sup>

Real gross domestic product (GDP) increased at an annual rate of 5.2 percent in the third quarter of 2023 (table 1), according to the "second" estimate released by the Bureau of Economic Analysis. In the second quarter, real GDP increased 2.1 percent.

The GDP estimate released today is based on more complete source data than were available for the "advance" estimate issued last month. In the advance estimate, the increase in real GDP was 4.9 percent. The update primarily reflected upward revisions to nonresidential fixed investment and state and local government spending that were partly offset by a downward revision to consumer spending. Imports, which are a subtraction in the calculation of GDP, were revised down.

**Real GDP Growth (Quarterly) 2010–2023**



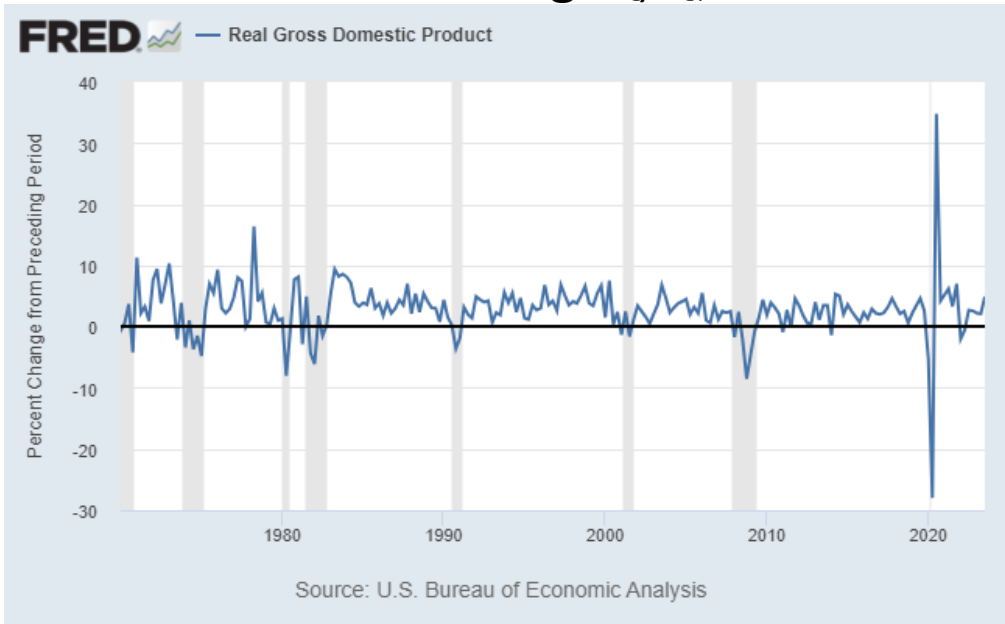
## WhatTheyTh!nk

Source: Bureau of Economic Analysis

This report is going to press PDF before the BEA releases its estimate of Q4 GDP, but early estimates (yes, estimates of estimates...) indicate that we'll likely see a reversion to the mean. Bank of America forecasts +1.3% q/q saar, Goldman thinks +1.5%, and the Atlanta Fed's GDPNow, usually more optimistic, estimates +2.2% Q4 GDP growth.

<sup>26</sup> Access the report at <https://www.bea.gov/news/2023/gross-domestic-product-second-estimate-corporate-profits-preliminary-estimate-third>.

## Real GDP % Change Q/Q, 1970-2022

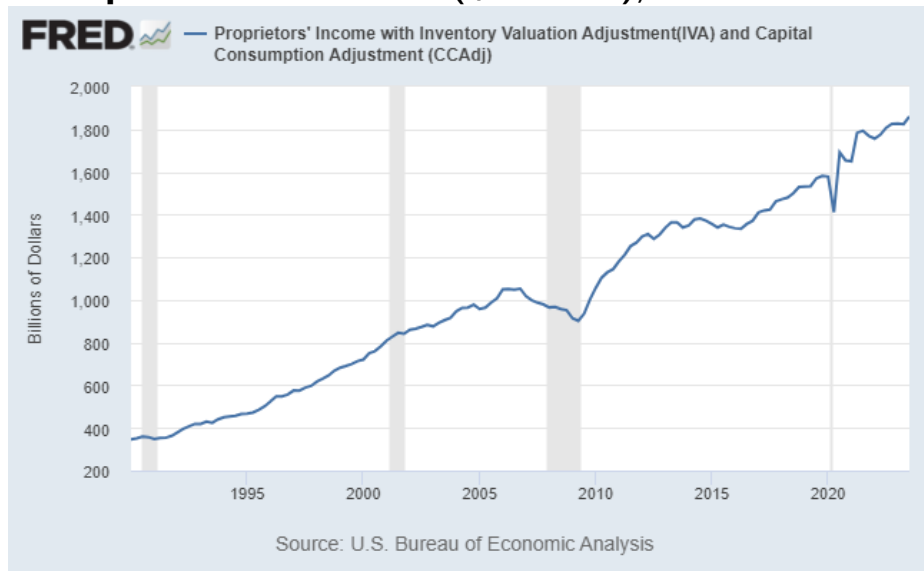


### Proprietors' Income

The figure below shows proprietors' income for the past 30 years. Proprietors' income is often seen as a surrogate for small business, and it tends to be out of phase with GDP as large businesses outsource work to small businesses at the beginning of recoveries and then make those services the first to be cut in expectations of a downturn.

Proprietors came out of the onset of the pandemic pretty strong; Q2 2020 had been a rough patch, but proprietors rebounded, including a lot of freelancers who generally were able to keep right on going through the pandemic. It also includes those working in construction and related services, which saw a slowdown during the worst of the pandemic, but were not as hard hit as other segments of the economy, like restaurants, retail, and others. Proprietors' income continues to be at record highs.

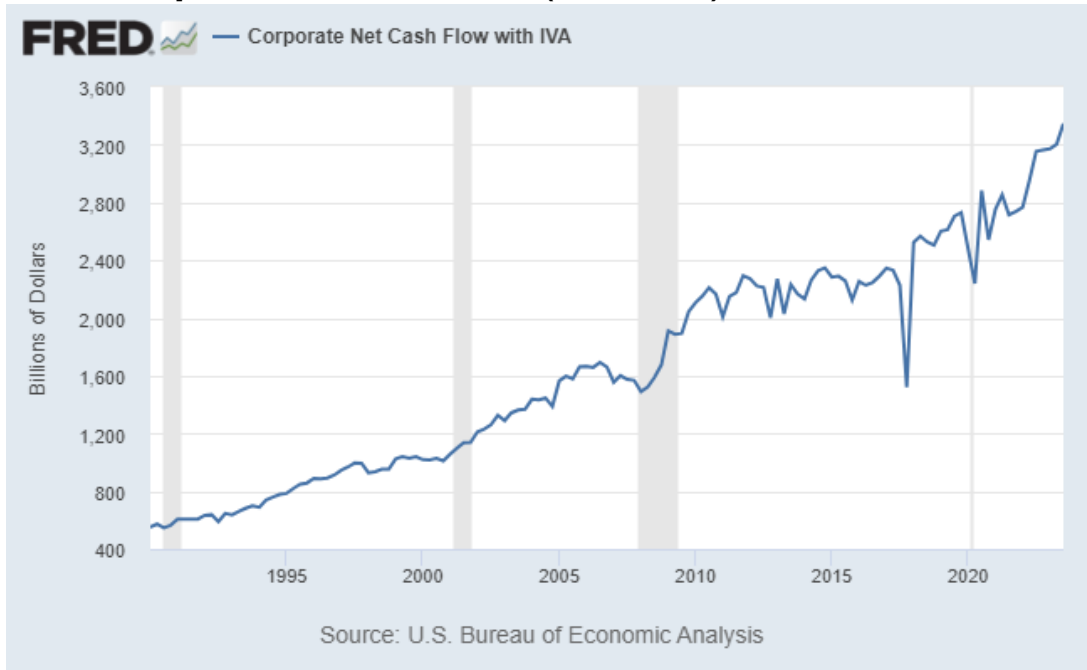
## Proprietors' Income (\$Billion), 1990-2023



### Corporate Cash Flow

Corporate cash flow growth had been inconsistent for the majority of the 2010s. It was down in 2017, but ticked up in 2018 substantially thanks to tax repatriation and the cut in the corporate tax rate. It crashed again immediately thereafter thanks to the pandemic, but is now at record highs. We wonder if “inflation” could have something to do with this...

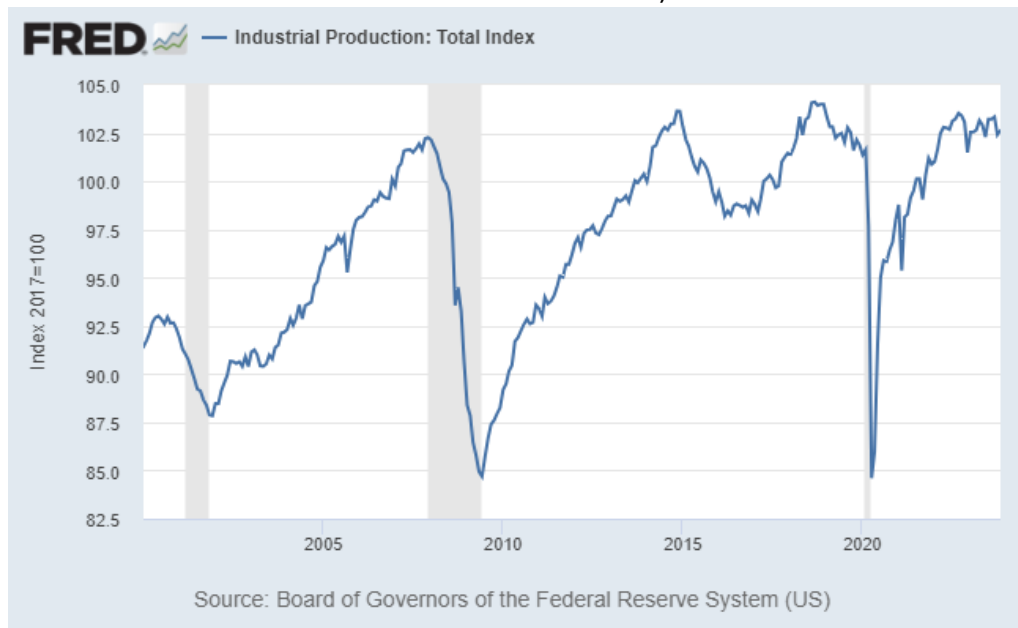
## Corporate Cash Flow (\$Billion), 1990–2023



## Industrial Production Index

If we look at the industrial production index post-Great Recession, 2016 had been pretty bad, 2017 and 2018 were better, 2019 saw it drop a bit. And then...well... In Q3 2020, it started ticking back up again and while it has been choppy, the general trend is upward and as of late has been close to record highs.

### Industrial Production Index, 2000–2023



## Durable Goods

Durable goods—items like appliances, home and office furnishings, lawn and garden equipment, consumer electronics, toys, small tools, sporting goods, and other items that last for at least three years (per the official definition)—had been getting generally better since 2016, although the data series is a bit noisy. They had been on a downward trend even before the pandemic, but along with everything else, fell off a cliff in early 2020. They have strongly rebounded, especially as everyone took the opportunity of the pandemic lockdown to mount home improvement projects, as well as improve their home technology infrastructures to support work-from-home and home schooling. This rapid rebound is one reason why it had been difficult to obtain big-ticket items like refrigerators, kitchen cabinets, etc., as quickly as one used to be able to. The last couple of years have been pretty choppy, but durable goods orders are still near record highs.

## Durable Goods Orders (\$Million), 2000–2023

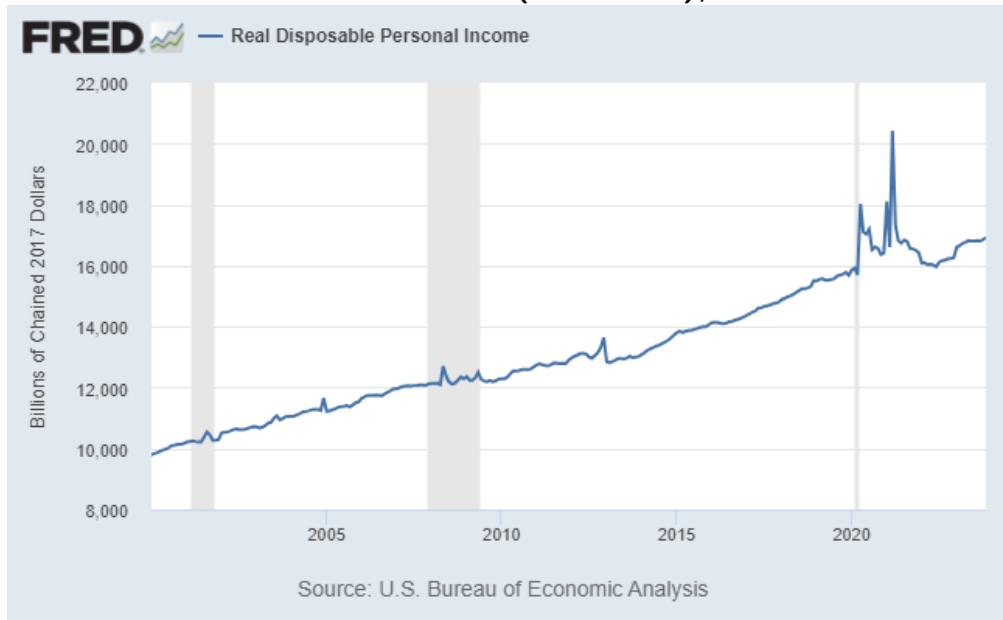


### Personal Income

Personal income is income that people get from wages and salaries, Social Security and other government benefits, dividends and interest, business ownership, and other sources.

This is one of the few indicators that increased during the pandemic, largely driven by CARES/PPP, extended unemployment benefits, and other disaster relief initiatives. These initiatives ended in 2021, and hence the drop in this data series in 2022, although it's gradually been on the rise.

## Real Personal Income (\$Billion), 2000–2023



## Consumer Confidence

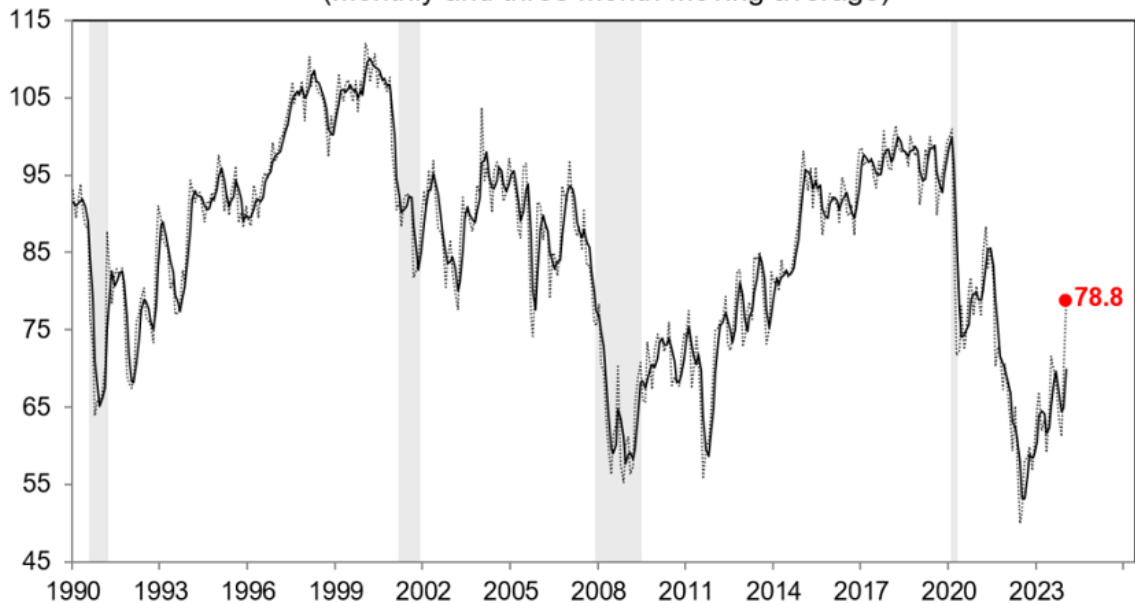
Consumer confidence is a hard thing to figure, as it seems to ebb and flow independent of what other data points would suggest. Of course, most consumers don't pore over economic data and pretty much go on "gut" instincts. Usually, those instincts are a little mysterious; although in 2020 and 2021, we had a pretty clear idea, we're back to the world of mystery.

### Consumer Sentiment Index

Consumer sentiment had been pretty much a mixed bag even before the pandemic, but took a nosedive in early 2020. It bounced back in 2021, but fell off another cliff in late 2021–2022, as "supply chain issues" and inflation dominated the economic zeitgeist. It's now on the rise again as these issues are resolving themselves, and people are actually getting the sense that economic Armageddon is not imminent. And as this report was going to "press," consumer sentiment soared. Said the University of Michigan Consumer Sentiment Survey in January 2024:<sup>27</sup>

Consumer sentiment soared 13% in January to reach its highest level since July 2021, showing that the sharp increase in December was no fluke. Consumer views were supported by confidence that inflation has turned a corner and strengthening income expectations. Over the last two months, sentiment has climbed a cumulative 29%, the largest two-month increase since 1991 as a recession ended. For the second straight month, all five index components rose, with a 27% surge in the short-run outlook for business conditions and a 14% gain in current personal finances. Like December, there was a broad consensus of improved sentiment across age, income, education, and geography. Democrats and Republicans alike showed their most favorable readings since summer of 2021. Sentiment has now risen nearly 60% above the all-time low measured in June of 2022 and is likely to provide some positive momentum for the economy. Sentiment is now just 7% shy of the historical average since 1978.

**Index of Consumer Sentiment**  
(Monthly and three month moving average)



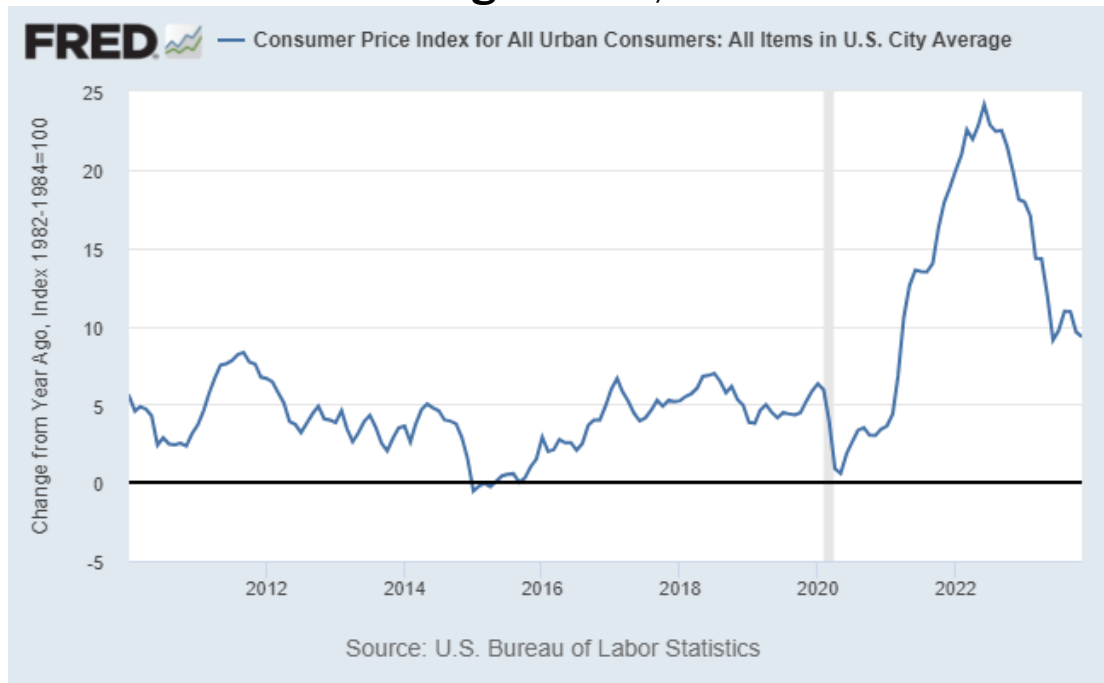
University of Michigan 2024

<sup>27</sup> Access it at <http://www.sca.isr.umich.edu/>.

## Consumer Price Index

The figure below shows the percent change in the Consumer Price Index from 2010 to 2023. Here's what we said in 2020's Outlook report: "[CPI] has just come close to 2%. If there is one good thing about the pandemic, it has kept inflation pretty low." Hah! In early 2023, inflation had been running as high as 7.1%, but by fall it started ebbing. The inflation rate was down to 3.4% in December 2023.

### Percent Change In CPI, 2010–2023



Still, that was up from a low of 3.1% in November 2023. However, that increase was likely due to bad housing data. Wrote Barry Ritholtz at The Big Picture<sup>28</sup>:

Bureau of Labor Statistics pointed to shelter as the source of the increase: "The index for shelter continued to rise in December, contributing over half of the monthly all items increase." The way BLS measures shelter inflation is [Owner's Equivalent Rent](#), a mix of rent measures and survey-driven weighting that asks people about their housing costs.

In the real world, shelter measures were flat or negative.

The Apartment List National Rent Report showed that the rental market ended 2023 with a fifth straight month of negative rent growth Nationwide, median rent fell by 0.8% in December – even as the lagged BLS measure showed a rise.

...Bottom line: As I have been writing [since 2005](#), *Owner's Equivalent Rent* is a noisy, survey-driven model that operates on a very long lag. CPI overweights shelter, making it the largest part of CPI. While BLS data shows a modest increase, real-world, real-time measures show the opposite – a decrease in the shelter component of CPI.

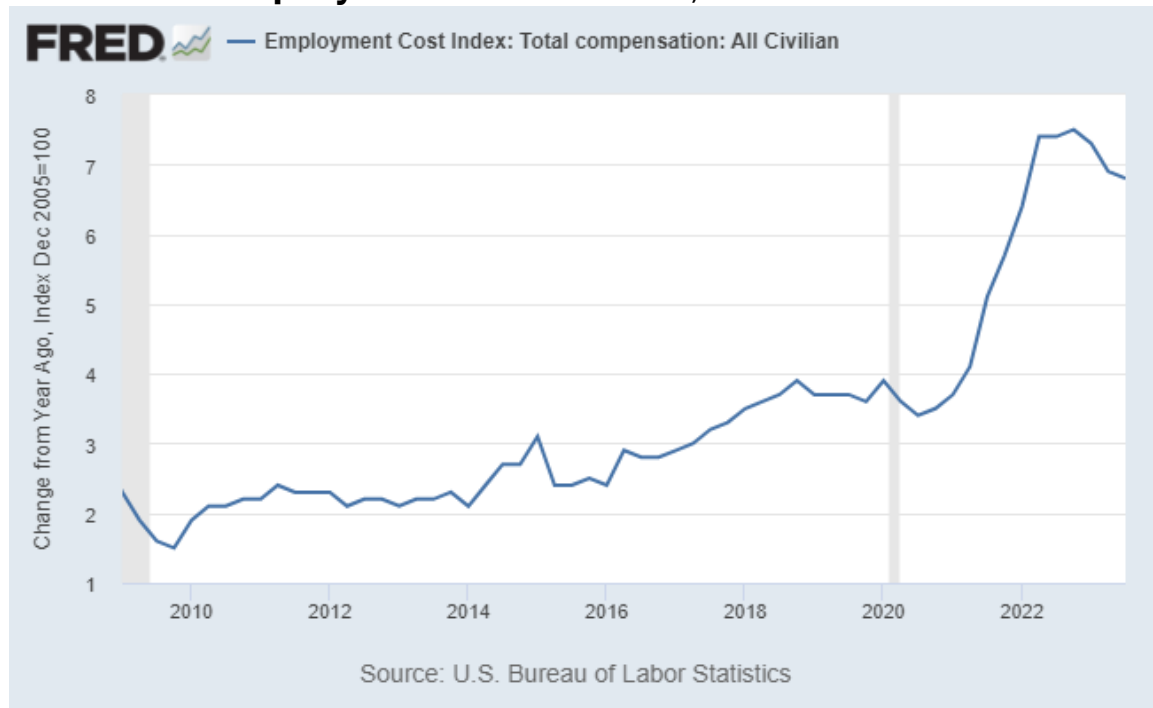
Also we note that inflation has been a global phenomenon, not just a US one.

<sup>28</sup> Barry Ritholtz, "CPI Increase is Based on Bad Shelter Data," The Big Picture, January 1, 2024, <https://ritholtz.com/2024/01/cpi-increase-is-based-on-bad-shelter-data/>

## Employment Cost Index

Here’s a graph most print business owners will understand in a second. The Employment Cost Index includes the total compensation for all civilian workers, and had been rising moderately since about 2016, started to slow around 2019, and took a dive during the pandemic. Funny, we usually say about this data: “This is an indicator we’d like to see rise (it’s a sign of a potentially improving employment market).” Be careful what you wish for! Note how it has climbed and climbed and climbed over the course of 2022, although it has been dropping since. It could be argued that an employment market can improve too much—although that really depends on whether you are an employee or an employer.

### Employment Cost Index, 2009–2023



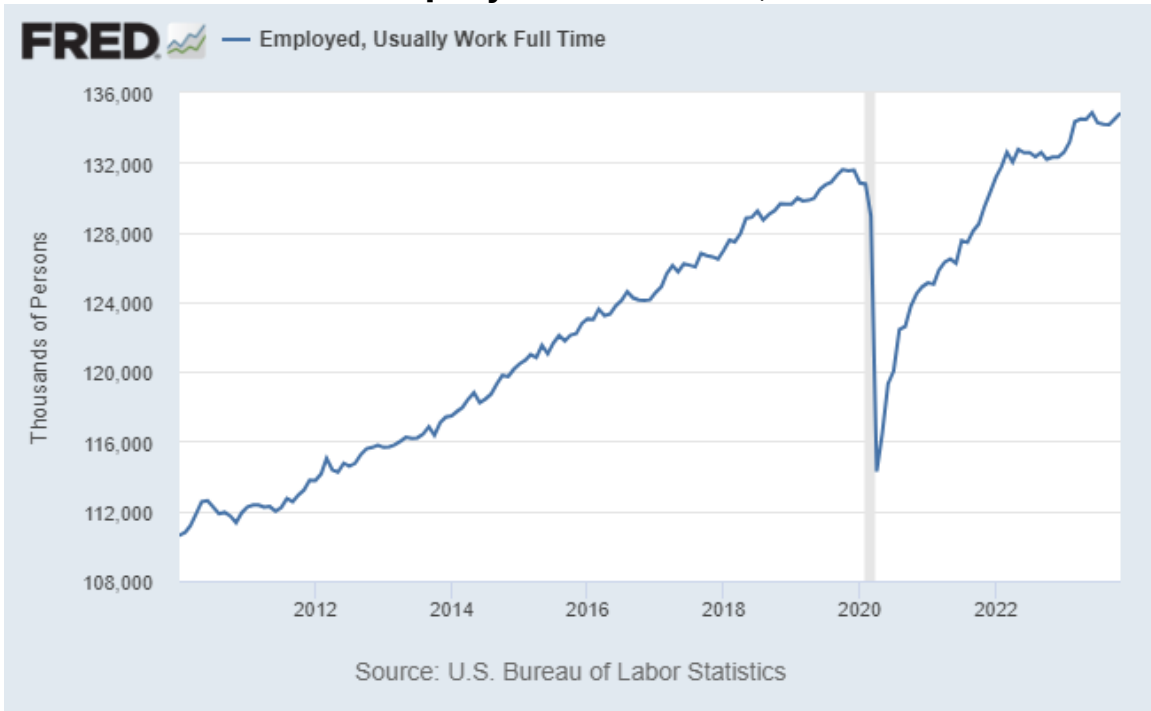
## Employment and Unemployment

### Full-Time Employment

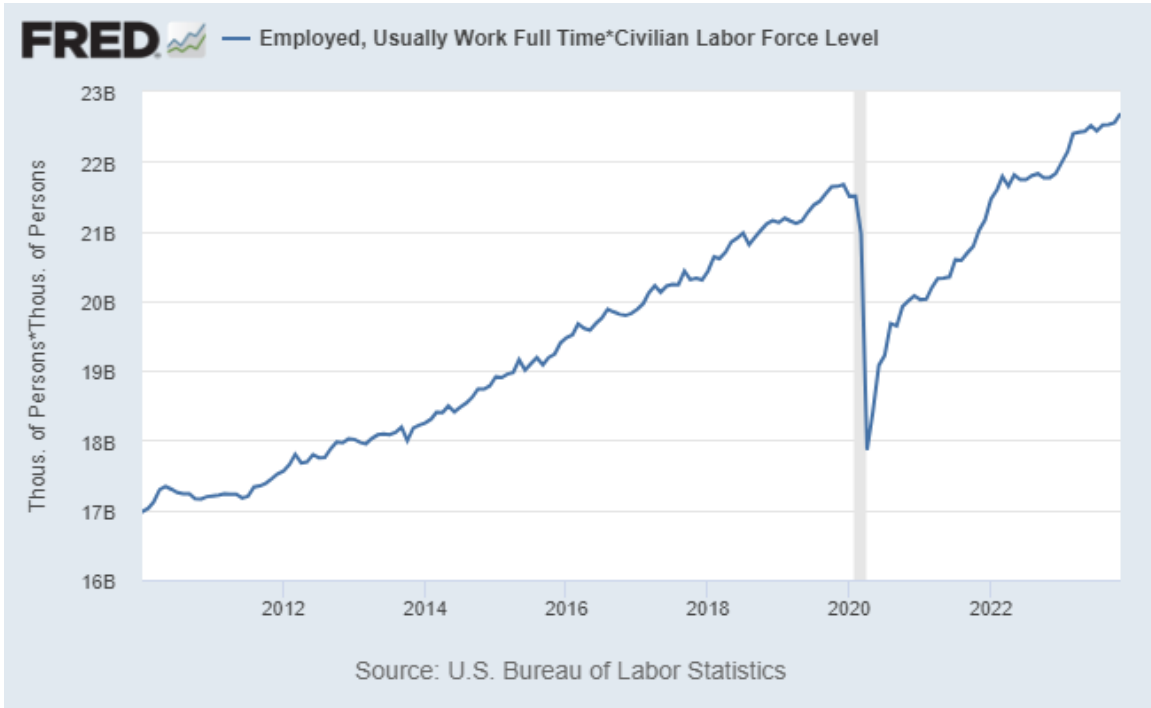
The employment situation has been phenomenal throughout 2021, 2022, and 2023. Remember early 2020 when initial unemployment insurance claims data wrecked the y-axis of everyone’s charts? That has obviously reversed itself.

As we all know, employment tanked in early 2020, but started to rebound as PPP funding and subsequent business reopenings in the summer allowed a lot of businesses to hire a fair amount of their workforce back. (For the record, the unemployment rate as of January 2020 was 3.5%; in January 2021, it was 6.7%; and in December 2023, it was 3.7%.)

## Number of Employed Full-Time, 2010–2023



## Number of Employed Full-Time Adjusted for Size of the Labor Force, 2010–2023



Said the BLS in their January 6 report:<sup>29</sup>

Total nonfarm payroll employment increased by 216,000 in December, and the unemployment rate was unchanged at 3.7 percent, the U.S. Bureau of Labor Statistics reported today. Employment continued to trend up in government, health care, social assistance, and construction, while transportation and warehousing lost jobs.

...The change in total nonfarm payroll employment for October was revised down by 45,000, from +150,000 to +105,000, and the change for November was revised down by 26,000, from +199,000 to +173,000. With these revisions, employment in October and November combined is 71,000 lower than previously reported. (Monthly revisions result from additional reports received from businesses and government agencies since the last published estimates and from the recalculation of seasonal factors.)

The U-6 rate (the so-called “real” unemployment rate which includes not just those currently unemployed but also those who are underemployed, marginally attached to the workforce, and have given up looking for work) is up to 7.1%, up from a record low of 6.4% a year ago.

Still, as we always point out, headline or even U6 numbers are only part of the employment story.

### Part-Time Employment

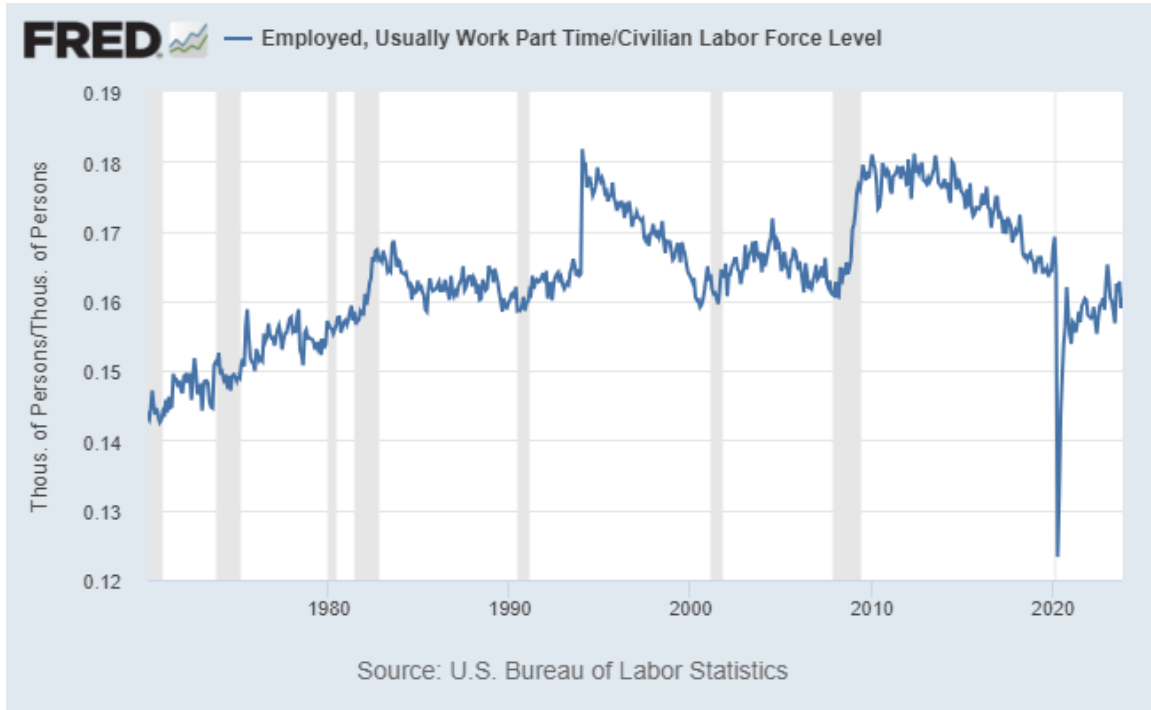
We had been seeing a greater than usual percentage of part-timers. The reason for big jump around 1992/1993, by the way, was a redefinition of “part-time.” If you look at the late 1990s, you can see what an economic boom does: it reduces part-time employment in favor of full-time jobs. We had been slowly getting back to that point. However, the pandemic took almost as much of a toll on part-time employment as full-time.

Of course, we shouldn't make the assumption that everyone who works part-time really wants a full-time job. Some do, sure, but some people choose to work part-time, either because they are raising a family (or home-schooling, in the case of the pandemic era), or because, thanks to the Affordable Care Act, they may not need a full-time job to get health care coverage. At the same time, during the lockdown when schoolkids were at home and being home-schooled at least part of the time, some parents opted to switch to part-time employment and some may have preferred that employment situation.

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<sup>29</sup> Access it at <https://www.bls.gov/news.release/empsit.nr0.htm>

## Part-Time Employed as a Percentage of the Workforce, 1970–2023



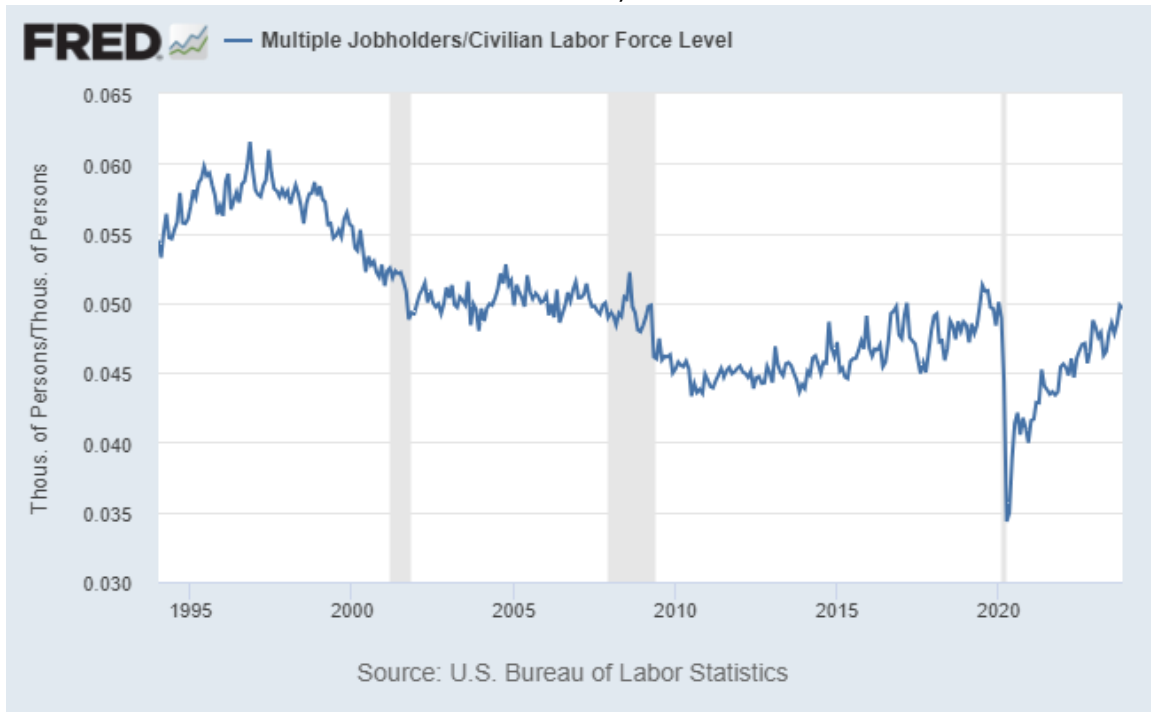
### Multiple Jobholders

Multiple jobholders are typically an issue for the payroll employment data because the workers they tally can be double-counted. Payroll data count how many people are going to get W-2s (if you work more than one job, you get more than one W-2), whereas the household survey counts each worker once regardless of how many jobs they have.

Although the data is noisy, multiple jobholders had been rising throughout the 2010s, likely because people needed multiple jobs in order to meet financial obligations for which a single job is inadequate.

Multiple jobholders fell in early 2020 and had been slower to rebound than other kinds of employment, perhaps because with rising wages, people didn't have to work two or more jobs at the rate they used to have to. Multiple jobholders are now back to pre-pandemic levels and since other data has shown continuous wage growth, perhaps people prefer to have a side hustle.

## Multiple Jobholders as a Percentage of the Workforce, 2000–2023



### Unemployment Rate

This chart is pretty much the reverse of the employment chart we saw a few pages ago. In the last employment report at the time of this analysis (December 2023), the headline unemployment rate was 3.7%. It had peaked at 14.7% in April 2020.

## Unemployed as a Percentage of the Workforce, 2000–2023



### Employment-to-Population Ratio

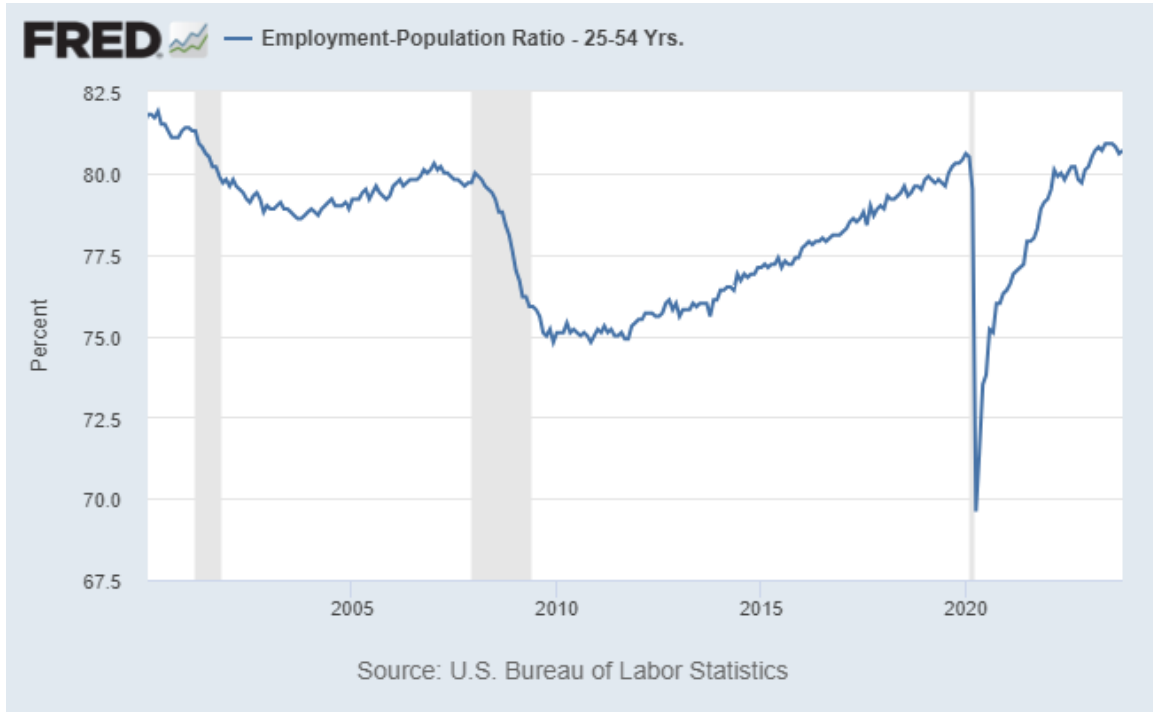
The employment-to-population ratio had been steadily improving over the course of the 2010s, until...you know. The pandemic took a lot of people out of the workforce, as Boomers and maybe older Gen Xers took that opportunity to retire (lucky stiffs)—and, well, thanks to the virus, a not insubstantial number “exited the workforce,” to put it euphemistically. And others had remained skittish about returning. And still others stayed out of the workforce to focus on child rearing, home schooling, etc. So the overall employment-to-population ratio is still below its highest pre-COVID level, although not by all that much.

## Employment-to-Population Ratio, 2000–2023



As with almost everyone else, labor force participation among prime-age workers (25 to 54 years old) plummeted in early 2020, but is now above its pre-COVID and even pre-Great Recession level.

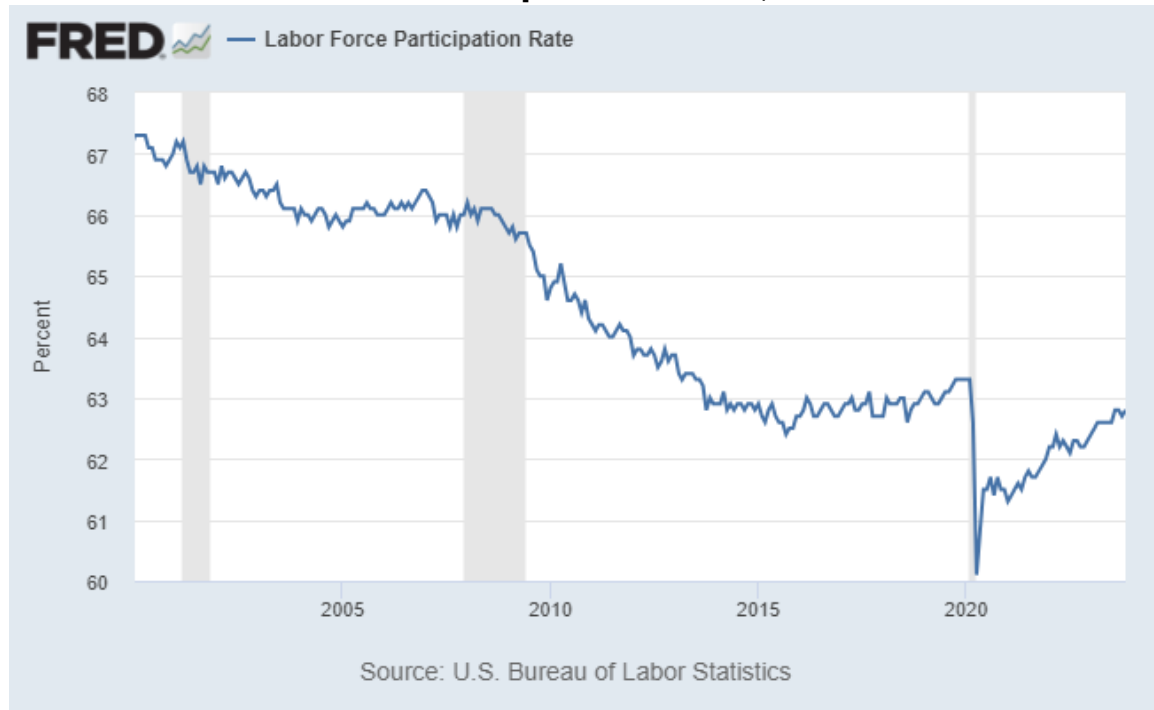
## Employment-to-Population Ratio for 25- to 54-Year-Old Workers, 2000–2023



### Labor Force Participation Rate

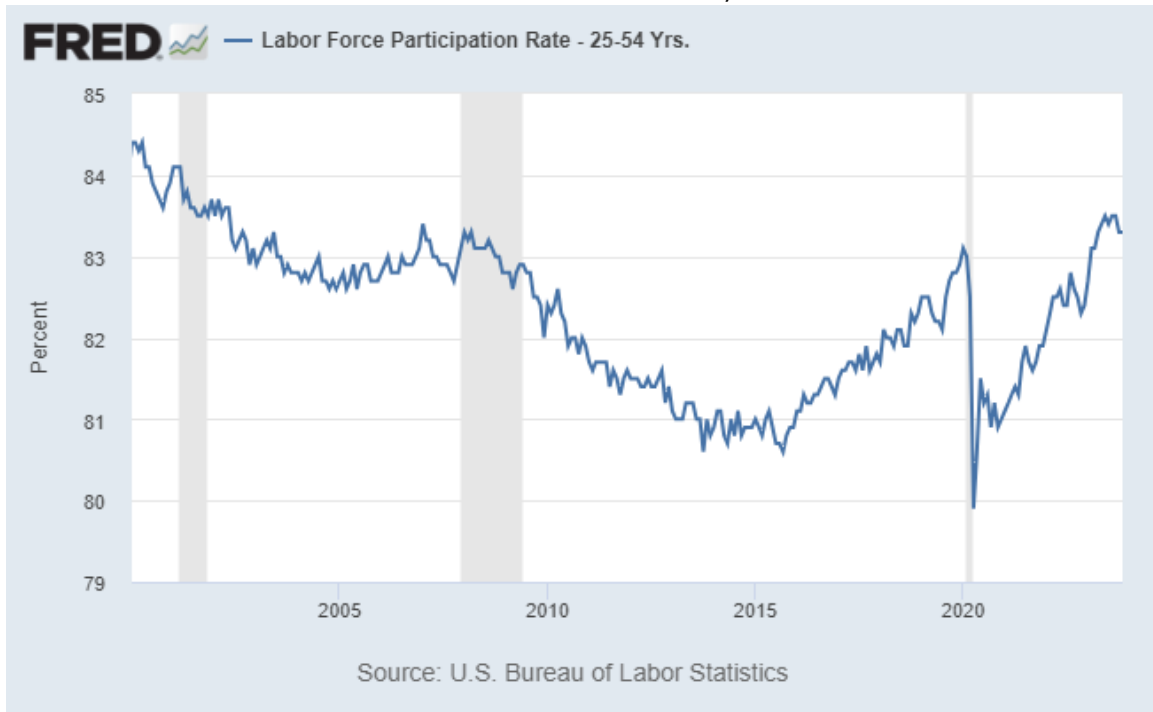
The labor force participation rate peaked in the late 1990s and started dropping between the two 2000s recessions, driven in so small part by Boomer retirement, which continued through the 2010s. The pandemic took quite a few folks out of the workforce who have yet to return (and many who may not). As of December 2023, the labor force participation rate is close to its pre-pandemic trough, and has been steadily on the rise.

## Labor Force Participation Rate, 2000–2023



As of December 2023, the labor force participation rate for prime-age workers is well above that of the general population, while now above its pre-pandemic peak, the last few months have tracked a slight decline, which is a bit worrying.

## Labor Force Participation Rate for 25- to 54-Year-Old Workers, 2000–2023



### Not In Labor Force

“Not in labor force” started its climb during the 1990s boom, and even between the two 2000s recessions had started reaching abnormally high levels, which the Great Recession didn’t appear to impact all *that* much (the line continued steadily upward). Some of this is due to retirees, but a lot of these folks should have been in the workforce even before the pandemic spike. It started to plateau in 2018/2019, but, as we would expect, spiked in 2020. It started to ebb back to trend, but still remains above the pre-pandemic levels, likely for the reasons we mentioned earlier.

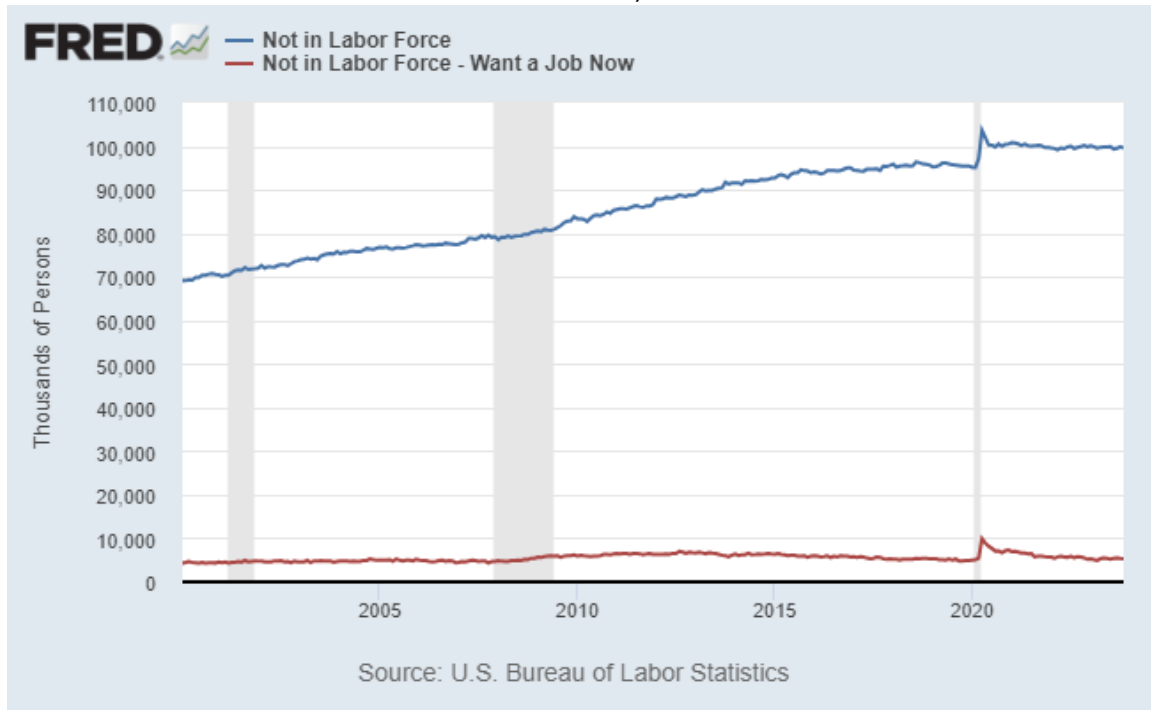
Aggregate data don’t tell us anything about individual situations, at least in the pre-pandemic period. Maybe a particular industry has been declining (do we know of any industries like that?), has vanished, or is in the process of vanishing—after all, it’s tougher to get work if that is someone’s particular field of expertise, or at least basic skill. Maybe there is a general skills mismatch. Maybe someone is a prisoner of geography, stuck in an economically depressed area (it’s not always easy for someone—especially if they have a family—to pull up stakes and relocate). And maybe available jobs pay far lower than what the market used to bear.

Post-pandemic, layoffs and furloughs saw a lot of people leave the workforce—perhaps for family reasons (with home schooling now a thing, for a lot of families perhaps it made sense for one parent to serve as full-time dad/mom) or perhaps for some of the reasons cited above, accelerated by the pandemic.

We thought it would be interesting to also plot “not in labor force, but want a job now,” and it’s remained fairly consistent over the past 20 pre-pandemic years. There was the expected spike in 2020, but it has quickly returned to trend. So those who are not in the workforce generally don’t want to be.

Maybe have seen recent reports from the World Economic Forum on the impact of AI/ChatGPT on employment (spoiler alert: not good).<sup>30</sup> We’ll have to see how this chart changes in the next 5–10 years.

## Not in Labor Force, 2000–2023



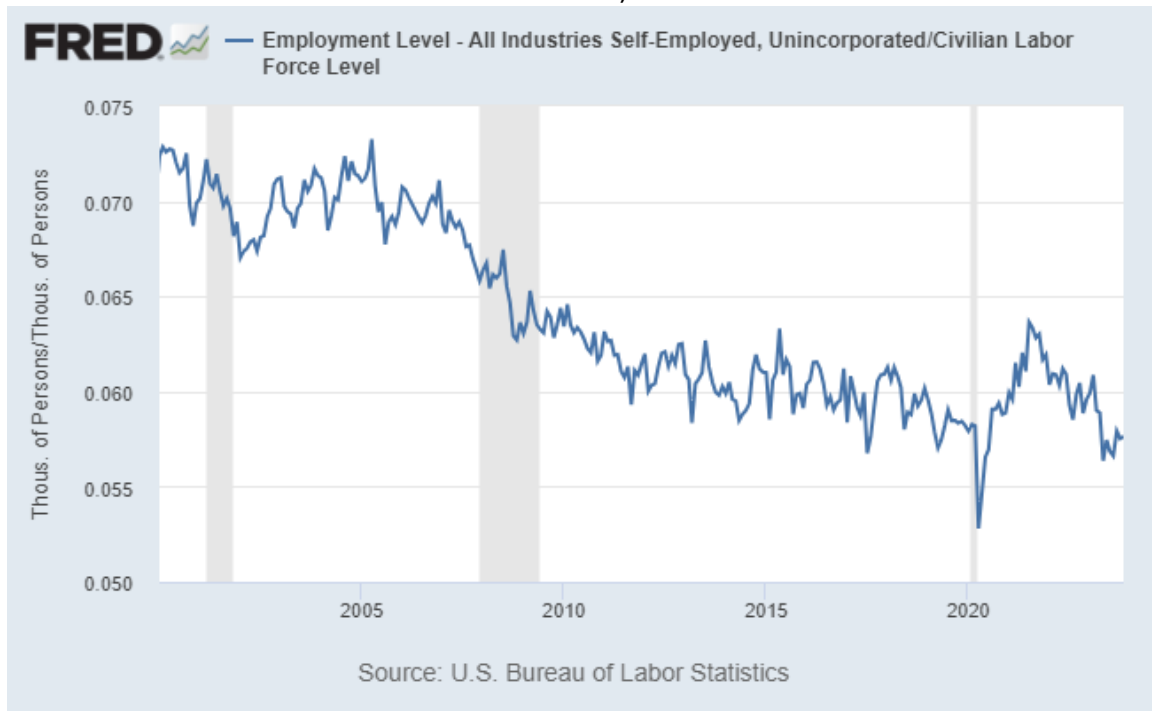
<sup>30</sup> Access it at <https://www.weforum.org/agenda/2023/05/jobs-lost-created-ai-gpt/>.

### Self-Employment

Because we're in graphic communications, we automatically think of the self-employed as writers, designers, web developers, and other "information workers." But as it happens, a hefty chunk of the self-employed are construction workers, which is why there was such a drop-off after the Great Recession, which was accompanied by the housing crash that took a toll on the construction industry. Theoretically, you would see many of these workers come to the full-time or part-time workforce or be more entrepreneurial—which, admittedly, is not always possible—and, let's face it, not everyone is adept at being entrepreneurial. Then again, these data reflect self-employed but unincorporated, so it's entirely possible that some of them became S corporations or LLCs—especially as the 2016 tax law conferred tax advantages on being such a "pass-through" organization.

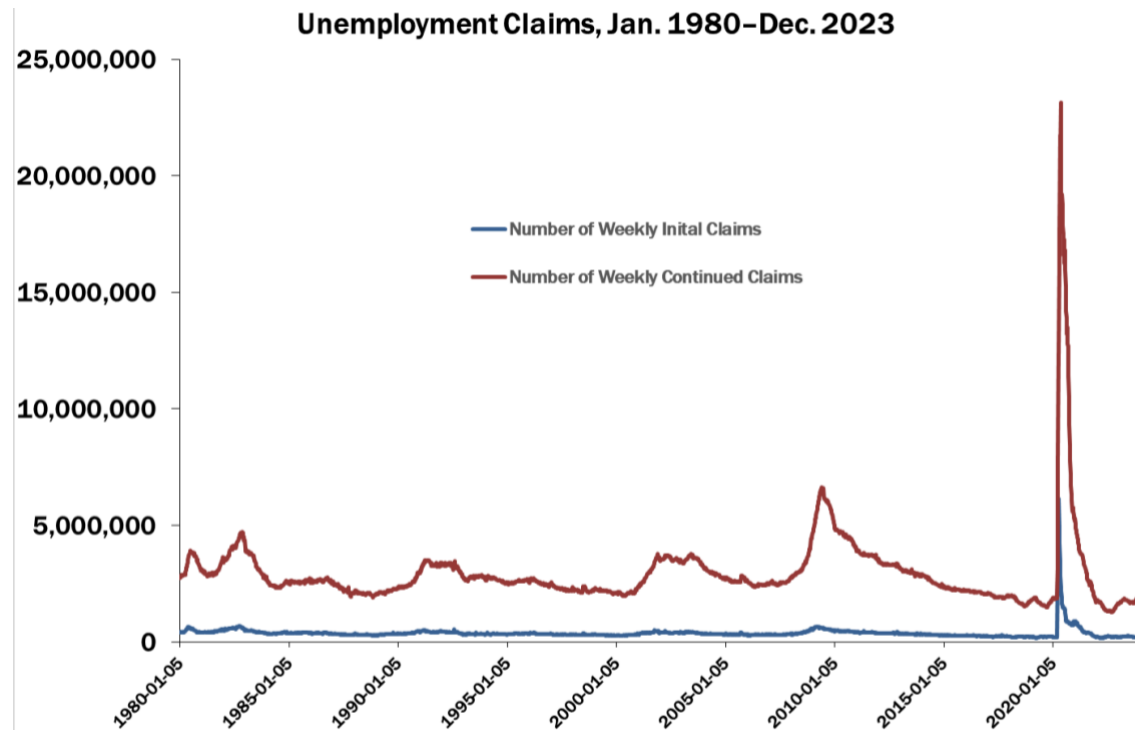
Somewhat counterintuitively, self-employment tanked then spiked in the early days of the pandemic but toward the end of 2021 started to come down again. It's possible the 1099 life was a stopgap measure until workers could return to full-time employment, even if that means work-from-home.

## Self-Employed as a Percentage of the Workforce, 2000–2023



### Unemployment Claims

One way we had been tracking the carnage throughout 2020 was via initial and continued unemployment claims. Employment watchers were shocked, *shocked*, back in late March 2020 when the first pandemic era unemployment claims report came out and weekly initial claims shot from 282,000 the week of March 14 to 3,307,000 the following week—then doubled a week later. (It was a bad time to be a y-axis.) It wasn't until August that initial weekly unemployment claims dropped below 1 million, a little longer for continued claims. (These figures did not include initial claims for Pandemic Unemployment Assistance [PUA].) Happily, both data series have returned to their pre-pandemic levels. By comparison, at the nadir of the Great Recession, continued claims peaked at 6,635,000.



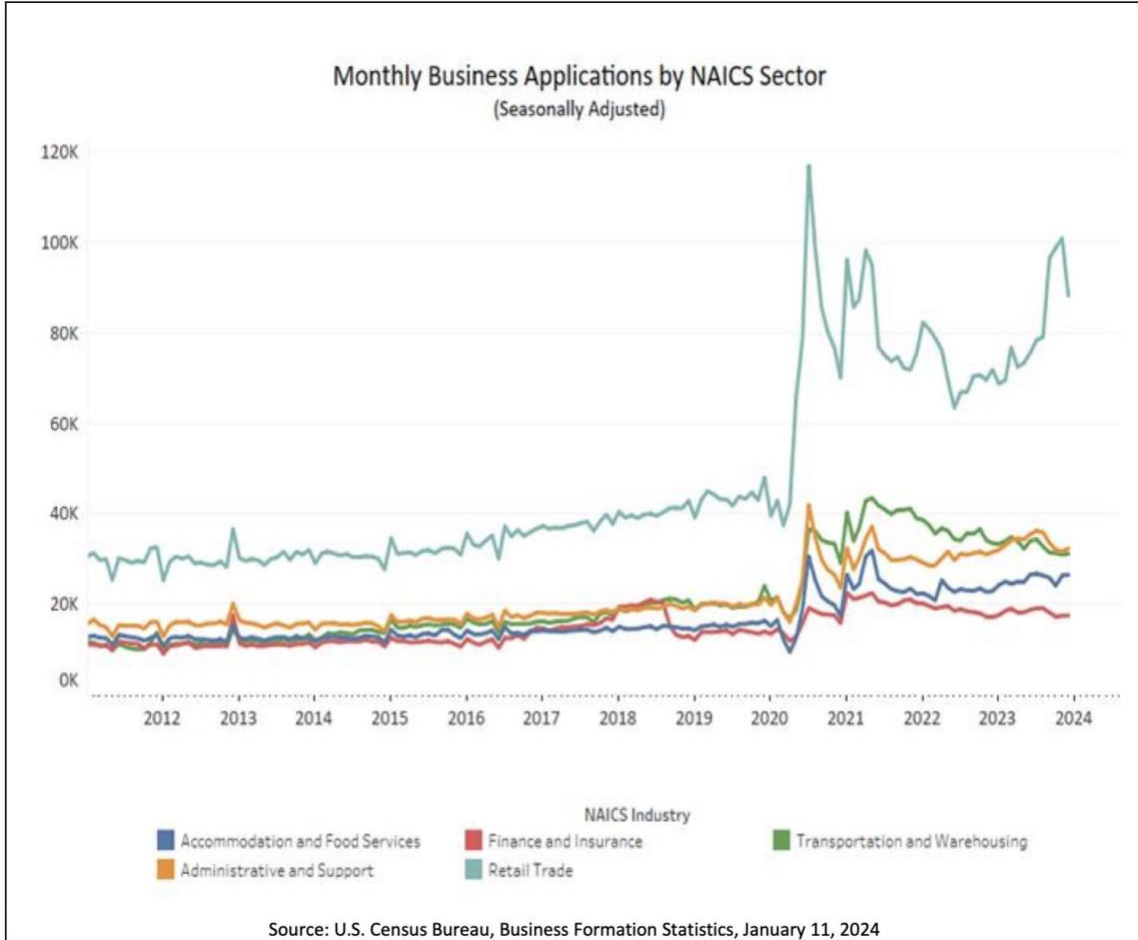
**WhatTheyThink**

Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/series/ICSA>

### New Business Formation

I admit, I have not been able to stop referencing a 2021 *Economist* headline, “New business formation in America goes bezonkers.”<sup>31</sup> New business applications reported by the Census Bureau were almost quite literally off the chart and while business formation has become a bit less bezonkers since the peak in 2020, it’s still pretty high. While some of these new businesses replaced those that failed during 2020, economists see it as one of the consequences of what has been called The Great Resignation/Reshuffling/Rewhatevering: people taking stock of their lives and careers during the pandemic and pursuing a dream of business ownership, or at the very least of not being stuck in a job one hates. How much of this will persist beyond 2023 remains to be seen, especially as the percentage of what the Census Bureau calls “high propensity applications” (those new businesses with a high likelihood of supporting a payroll) has dropped substantially.

<sup>31</sup> Read the article at <https://www.economist.com/united-states/2021/06/26/new-business-formation-in-america-goes-bezonkers>.



At the same time, these new businesses aren't just "work from home" writer and designer types. If we look into the specific NAICS categories in which these businesses are forming, one of the top-level business categories for new business creation has been "retail trade," which is a big vertical for sign and display graphics providers. Now, the trendline isn't particularly encouraging, but for the time being, business formation in this category is still pretty high.

Why do we mention this here? New businesses need a lot of resources and other materials to get started, often involving various kinds of print, including signage and other kinds of display graphics, both interior and exterior. This presents opportunities for print businesses, so keeping track of new business registrations in your area can be a good marketing strategy.

## Retail Sales

According to the Census Bureau, retail sales in November 2023 were up:<sup>32</sup>

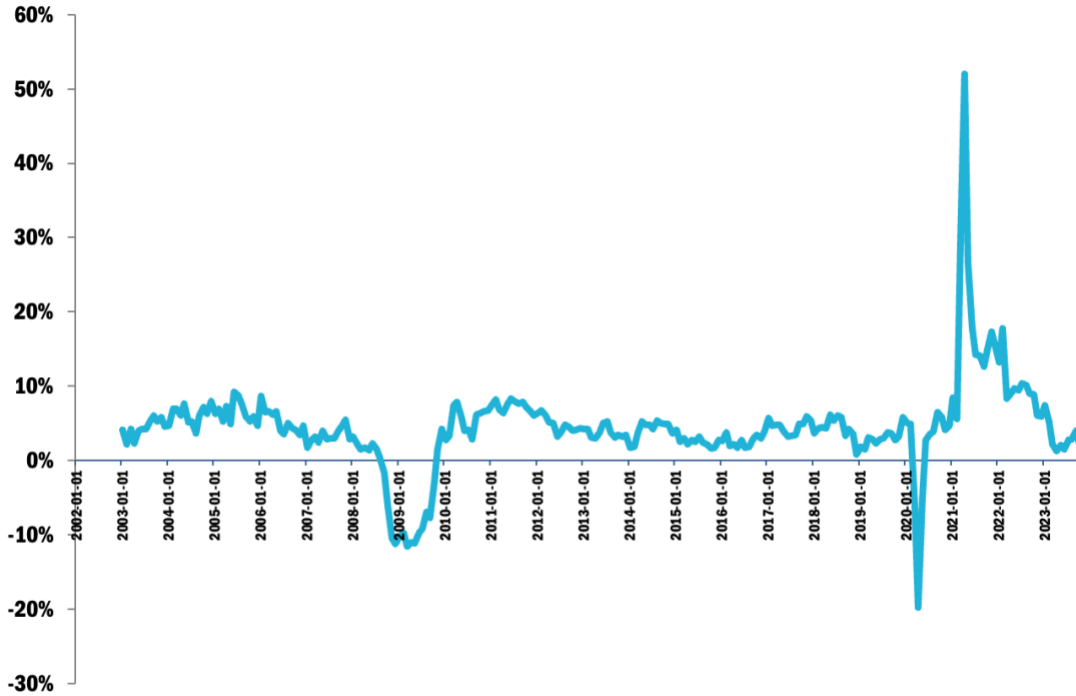
Advance estimates of U.S. retail and food services sales for November 2023, adjusted for seasonal variation and holiday and trading-day differences, but not for price changes, were \$705.7 billion, up 0.3 percent ( $\pm 0.5$  percent)\* from the previous month, and up 4.1 percent ( $\pm 0.7$  percent) above November 2022. Total sales for the September 2023 through November 2023 period were up 3.4 percent ( $\pm 0.4$  percent) from the same period a year ago. The September 2023 to October 2023 percent

<sup>32</sup> Access the report at [http://www.census.gov/retail/marts/www/marts\\_current.pdf](http://www.census.gov/retail/marts/www/marts_current.pdf).

change was revised from down 0.1 percent ( $\pm 0.5$  percent)\* to down 0.2 percent ( $\pm 0.2$  percent)\*.

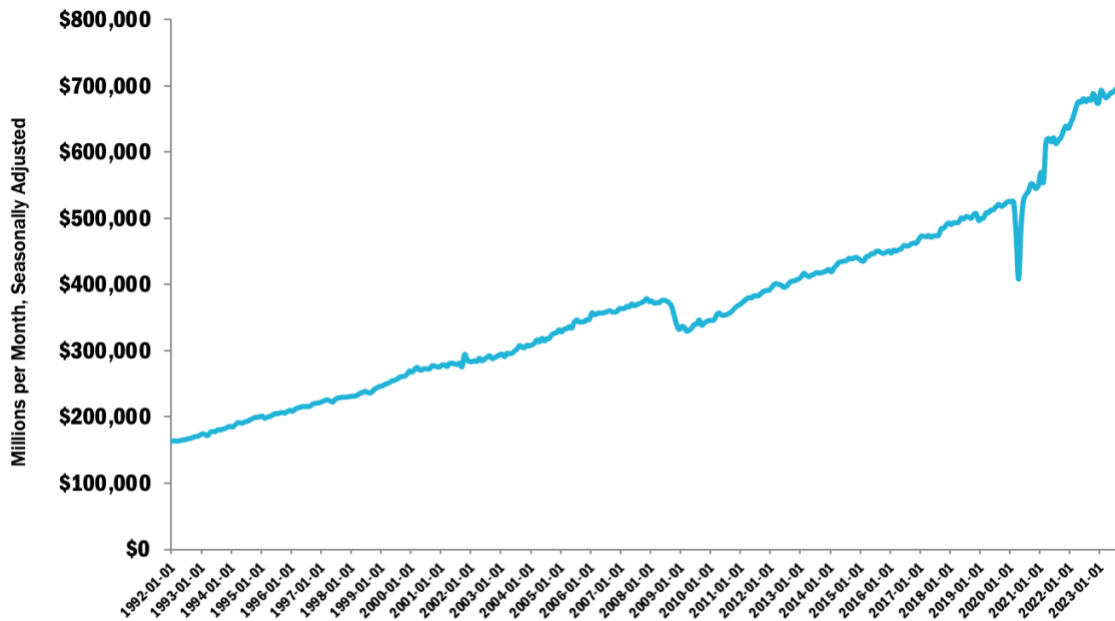
Retail trade sales were up 0.1 percent ( $\pm 0.5$  percent)\* from October 2023, and up 3.1 percent ( $\pm 0.5$  percent) above last year. Nonstore retailers were up 10.6 percent ( $\pm 1.6$  percent) from last year, while food services and drinking places were up 11.3 percent ( $\pm 2.3$  percent) from November 2022.

### Year-Over-Year % Change in Retail Sales, Jan. 2003–Nov. 2023



Source: Bureau of the Census

## Advance Retail Sales, Jan. 1992–Nov. 2023



### WhatTheyTh!nk

Source: Bureau of the Census

If you back out gasoline, retail sales were down 0.1% in November, and, sans gasoline, up 5.3% year-over-year. November retail sales came in above expectations, while sales in September and October were revised down, combined.

## Architecture and Construction

### Architecture Billings Index

One data point we have started following is the American Institute of Architects (AIA) Architecture Billings Index (ABI), which is a leading indicator for new commercial real estate investment and thus potential new signage projects. According to the AIA, in November 2023, demand for design services has been soft for most of the fall:<sup>33</sup>

Business conditions remained soft at architecture firms in November, as the AIA/Deltek Architecture Billings Index (ABI) remained below 50 with a score of 45.3 for the month (any score below 50 indicates declining billings). The score increased by one point from October, indicating that slightly fewer firms reported a decline in billings in November, but the majority of firms continued to report weak business for the fourth consecutive month, and the seventh month so far this year.

Billings had peaked in May but the index has been below 50 for almost the entire year. Still, there is some optimism:

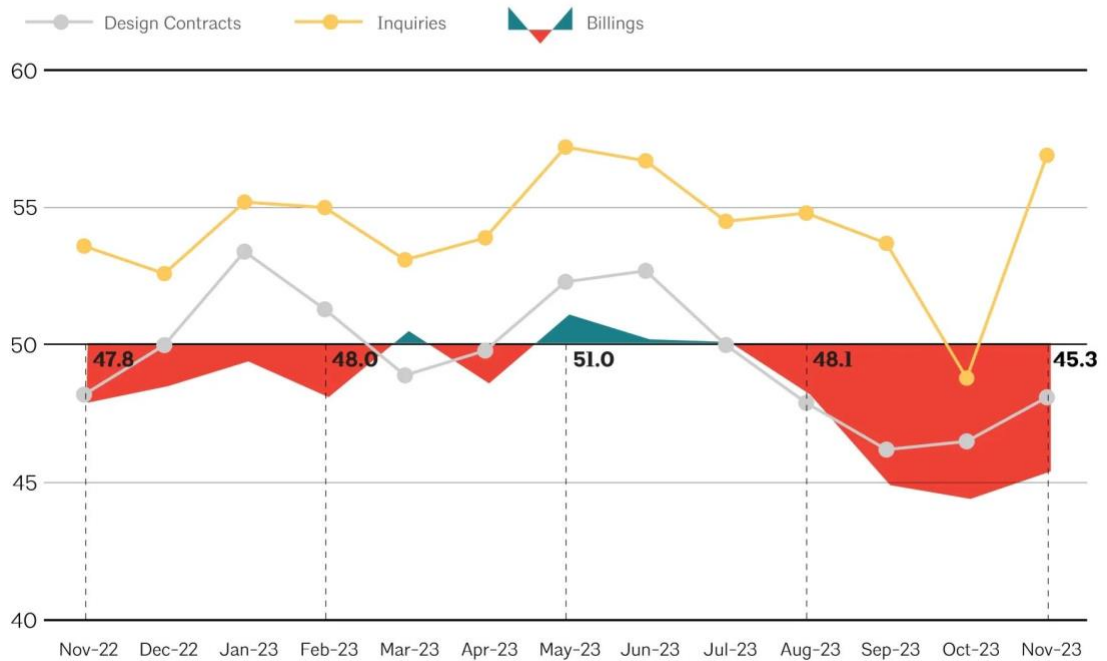
<sup>33</sup> Access the report at <https://www.aia.org/resource-center/abi-november-2023-business-conditions-remain-soft-architecture-firms>.

However, there are still some encouraging signs of potential work in the pipeline as inquiries bounced back in November after declining in October. And while the value of new signed design contracts continued to decrease in November, fewer firms reported a decline than in October.

## National

Architecture firm billings continue to decline in November

Graphs represent data from November 2022–November 2023.



Source: American Institute of Architects

The rule of thumb is that this index leads actual commercial real estate investment by about 9–12 months, so commercial real estate development might also be a bit soft as we head through 2024. Sign businesses should keep an eye on construction activity in their area to get a jump on involvement in these projects.

### The Economic Landscape

So, we're back to some semblance of normal. GDP growth has been good, occasionally phenomenal. Employment has been good—only up slightly from historic lows earlier this year. Even the one big dark cloud, inflation, is down to its normal level. The stock market has been up, wages have been up, consumer spending has been up—when people wish for “improving economic conditions,” we’re not sure what more they could ask for. The trick is convincing print customers that the economy is doing fine, as it’s when they are bearish that they cut spending on things like print.

Sure, the worry now—as it inevitably is at the new year—is, will there be a recession in 2024? There is no real sign of one, and the law of averages will surely mean that we’re due for one before too long. But for now, it looks like fairly smooth sailing.

So, with this backdrop, what does all this mean for the printing industry in 2024? That’s a topic for the next section.

## 9. INDUSTRY TRENDS AND OUTLOOK

Where do we go from here?

### Trends Affecting the Industry

#### Hot Trends

In many ways, forecasting is a fool's errand—we are reminded of economist John Kenneth Galbraith's famous quote, "The only function of economic forecasting is to make astrology look respectable"<sup>34</sup>—and we still recall that in January 2020, when we prepared the Printing Outlook 2020 report, we said, based on 2019, that 2020 was poised to be one of the best for the industry. And we know how that turned out. Knowing that annual forecasts have their limitations, what do past data and current trends tell us about what the future may hold?

#### The Economy

Our survey this year found that print businesses are substantially worried about national economic conditions. Not as acutely as last year, but still at a level far beyond what is warranted by reality, as we saw in much of the previous section. Although recent headlines<sup>35</sup> and the latest Consumer Sentiment Index—see the previous section—suggest that people are feeling more positive about the economy than they had been earlier this year.

Now, granted, it is not unwarranted to have some trepidation going into a new year, and we're not going to blithely disregard anyone's fears for the future. One of our favorite economic commentators, Barry Ritholtz of The Big Picture, recently posted a set of reasons to be bullish and bearish on 2024.<sup>36</sup> His focus was on investing rather than the economy in general, but we find some areas of overlap. Reasons to be bullish include momentum (things are on a roll, and unless something stops them, there is no reason to think the economy will crash and burn); no recession or sign of one; inflation under control; and the Federal Reserve (will rates come back down or stay high?). Reasons to be bearish include the "lagtime" of Fed policy (the negative impact of high rates won't be felt until sometime later in 2024); the lousy commercial real estate market due to high interest rates and work from home trends; global slowdowns; wars.

And recall that one major impact of high interest rates is a slowdown in capital investment in printing equipment.

The economy is a concern in virtually every survey, and the past 20 years have been very erratic, starting with the last of the dot-com boom in 2000; the 2001 post-boom "recessionette"; the recovery that never felt like a recovery in the mid-2000s (remember when gas was over \$4 a gallon?); the Great Recession in 2008; the slow recovery of the mid-2000s; and the up and down of the pandemic and post-pandemic years. So it is not wrong to feel as if things can change in a New York minute.

Anyway, enough about the economy. What is impacting the industry specifically?

#### Automation

This item has been in our Industry Trends section for ages, and we like to preface this section with a quote attributed to scholar, organizational consultant, and author Warren G. Bennis: "The factory of the future will have two employees: a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment." We saw in Section 5 that "automation" can mean a number of things. As our former Software section editor Jennifer Matt pointed out two years ago, "Automation is about finding recurring patterns and then taking them out of the hands of humans and into the realm of software so that repetitive tasks can be done programmatically—and

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<sup>34</sup> Or Yogi Berra's quote, "It is difficult to make predictions, especially about the future."

<sup>35</sup> Gwynn Guilford, "Americans Are Suddenly a Lot More Upbeat About the Economy," *Wall Street Journal*, January 19, 2024, <https://www.wsj.com/economy/consumers/americans-are-finally-feeling-better-about-the-economy-e964804f>

<sup>36</sup> Barry Ritholtz, "Are You Bullish or Bearish in 2024?" The Big Picture, January 8, 2024, <https://ritholtz.com/2024/01/2024-bull-bear/>

'programmatically' automating anything in your business will inevitably involve your Print MIS."<sup>37</sup> At the same time, manufacturers are building more automation features into their offerings. Indeed, it is the extremely rare Product Strategy video in which a vendor's representative doesn't address automation.

Automation has the potential to solve at least some portion of our employment problem, and that may be the primary reason that interest in automation has spiked in this survey. Could 2024 be the year that sees a quantum leap forward in automation implementation? Could be. But it will likely be one of those things that is just built into new hardware and software rather than something a printer needs to specifically go out and implement. After all, Photoshop is technically automation, compared to the old, photographic means of making color separations.

### Sustainability

As I write this report, I am also starting to plan our coverage for the drupa Show Daily<sup>38</sup> and many of drupa's Focus Topics<sup>39</sup> are sustainability-oriented. If you have been to a packaging show—or read press releases from any packaging consumables manufacturer—you know that sustainability is a top-of-mind issue across the industry, and beyond. Sustainability has become about more than just using recycled materials, it's about not only paying attention to the entire lifecycle of a printed piece, and what happens to it at the end of life, but also looking at all the aspects of one's operations and identifying where improvements can be made.

Sustainability is becoming quantified in large part via a carbon footprint, a calculation of greenhouse gas emissions (GHG), and it's becoming an organizational requirement. That is, it's a key component of risk management strategies for companies throughout the economy, it's being requested and/or required by more and more customers, and it's even being demanded by employees, students (i.e., potential employees), and stakeholders. It's also starting to be required by the investment community: the Securities and Exchange Commission (SEC) has proposed reporting requirements for companies' Scope 1, Scope 2, and Scope 3 carbon emissions. However, they are still working on those requirements, and they be finalized sometime in 2024 and not go into effect until 2026.<sup>40</sup> But they're coming. And municipalities are starting to also require GHG reporting. So it's something that print businesses are going to start paying closer and closer attention to. We always recommend certification by the Sustainable Green Printing Partnership (SGP) (<https://sgppartnership.org/>), the gold standard for industry certifications.

### Product Diversification

We saw in Section 2 that product diversification was deemed a top business opportunity, but the data in Section 3 indicates that they're not exactly sure what to diversify into (I will have to tweak this question this fall, if I survive drupa). It could be other kinds of commercial print, but aren't all that high on other kinds of specialty printing—display graphics (been there, sone that), packaging, and textiles don't seem especially appealing. Labels are a possibility. At any rate, the days of a printer being defined by what they produce—a book printer, a publication printer, a forms printer—are long gone. And driving that is the ability for today's digital presses to handle widely varying types of printed products.

### Employment

Our survey results have continually indicated—especially since the pandemic—that finding employees has remains a challenge. This employee crunch predated the pandemic, and will likely persist long after it. Ultimately, attracting people to a print business hinges on three basic things:

- Paying a competitive wage.

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<sup>37</sup> Jennifer Matt, "Automation Starts with Your Print MIS/ERP," WhatTheyThink, January 5, 2022, <https://whattheythink.com/articles/108860-automation-starts-your-print-miserp/>

<sup>38</sup> For those not in the know, yes, the WhatTheyThink team has been hired to write and produce the drupa Daily.

<sup>39</sup> [https://www.drupa.com/en/Exhibit/Become\\_an\\_exhibitor/Focus\\_Topics](https://www.drupa.com/en/Exhibit/Become_an_exhibitor/Focus_Topics)

<sup>40</sup> Jon McGowan, "SEC Climate Disclosure Rule Most Likely Not Final Until 2024, Effective 2026," *Forbes*, October 26, 2023, <https://www.forbes.com/sites/jonmcgowan/2023/10/26/sec-climate-disclosure-rule-most-likely-not-final-until-2024-effective-2026/?sh=75e9d6243434>

- Offering a competitive package of benefits—and clearly communicating them. (Decent health care, paid family leave, or paid child care may be more attractive than a higher wage elsewhere.)
- Providing an attractive company culture that makes workers feel appreciated.

These three things are not in any way unique to the printing industry and we find every year, when we talk to our annual Top 100 Commercial Printer winners, the most successful printing companies already offer these things and more. No one wants to work in a “dark satanic mill.”

The employee crunch can have long-term effects that automation can’t really resolve: finding the industry’s future leaders. Sure, you can replace a bindery worker or a press operator with push-button simplicity, but to what extent does that prepare anyone to move up in the ranks of the company and ultimately take over leadership? If a shop reaches the point where they can have “lights-out” automation, can a robot take over a managerial position? Is that something AI can do? Does anyone want to work for AI or a robot—except maybe other AI or robots? So you see the problem we have.

We’ve been wrestling with the problem of attracting people to the industry for years. One strategy would be to reach out to industry associations that work closely with educational institutions to groom the next generation of graphic communications employees. The Print and Graphics Scholarship Foundation (PGSF) (<https://www.pgsf.org/>) provides undergraduate college and technical school scholarships and graduate fellowship assistance to those pursuing graphic communications careers. Their recipients include full time students as well as industry workers who seek additional education. They can be a good source of leads.<sup>41</sup> Heidi Tolliver-Walker writes occasionally about the Mariano Rivera Foundation (<https://themarianoriverafoundation.org/>), which helps at-risk youth better their lives and train for careers in a wide variety of industries. EFI, Konica Minolta, Ricoh, Idealliance, PRINTING United Alliance, and Adobe are among the industry vendors who are supporting the foundation, which has already started funneling much needed talent into the printing industry.<sup>42</sup>

Then there are the graphic arts programs at universities such as CalPoly, Clemson, and others and likely have job placement departments that help match students with potential employees.

These might all be better options than a general recruitment site like Monster.com.

## Lukewarm Trends

### Embellishments

This is one of the sad spots of these annual surveys; we so wish this were a warmer trend, because there is a great deal of potential for embellishments to dramatically raise the value proposition of printed materials. What do we mean by “embellishments”? Essentially, adding special effects to printed materials such as textures, metallic foils, and other tactile finishes—there is a growing number of players in this area but the emblematic examples are Scodix and MGI. The technology is fast-evolving, but the advantage of these new digital embellishment solutions is that they allow printers to create enhanced, desirable, memorable, and valuable print and packaging—the idea being that, when there is a perceived value, there is a willingness to pay a premium.

Our survey data doesn’t show a great deal of movement or interest in this area—yet (?). Hope springs eternal. We are bullish that this is an application area that will become hot, but there still needs to be a great deal of education which our friends at Taktiful (<https://www.taktiful.com/>) are taking the lead on. Taktiful president Kevin Abergel and finishing expert Trish Witkowski conducted an excellent webinar in December 2022, serving as an embellishment primer discussing:<sup>43</sup>

<sup>41</sup> The PGSF participated in a LunchNLearn Webinar on this topic two years ago; you can download a recording of the session at <https://whattheythink.com/webinars/253/>.

<sup>42</sup> Read Heidi’s most recent article on the topic at <https://whattheythink.com/articles/116159-mariano-rivera-foundations-print-design-packaging-development-program-adds-new-custom-training-program-commercial-printers/>.

<sup>43</sup> Watch it at <https://whattheythink.com/webinars/266/>.

- Different categories of embellishments, with examples of each.
- The different ways embellishments can be produced and applied.
- Top applications and exciting examples and case studies.
- How embellishments add value to print and packaging.

And Kevin and I shared the results of a special digital embellishments study we conducted, which can be watched at <https://whattheythink.com/webinars/276/>.

### Artificial Intelligence (AI)

There are a million different aspects to AI, and everyone who speaks of it is usually referring to something different. AI is already being used to automate various kinds of writing (though not this report...yet), particularly marketing copy and it is there—as well as generating imagery—that we see the biggest impact in the graphic communications industry, though not without controversy. People who write or draw obviously have issues, and not without reason. But this seems to be the way things are going, so we'll likely have to resign ourselves to AI-generated copy and images.<sup>44</sup>

The other aspect of AI, as we saw in Section 5, is that AI can be used for various prepress or administrative tasks, such as predictive maintenance, production analytics, and more. (Issue 1 of *WhatTheyThink* magazine—due out/online in February—has several articles that focus on uses of AI in the printing industry, so keep an eye out.)

As we said in Section 5, the phrase “AI-driven” is more of a marketing buzz phrase than anything else right now, but it will likely become transparent to the end user and simply the way software works.

### Election Year

One “good” thing about 2024, from a print standpoint, is that 2024 is a Presidential election year, which always provides a bump for the industry. Yes, social media and other online media are big campaign tools, but print is still an important medium for campaigns—not just direct mail but also lawn signs, banners, bumper stickers, etc. So in our forecast below, you'll notice a bit of a bump in the 2024 number, with a “reversion to the mean” in 2025.

### Ultimately: The Only Trend That Matters

We say this every year, and it bears repeating: there really is no trend more important than the fundamental demand for print in the marketplace. It doesn't matter whether digital or analog printing predominates, it doesn't matter how productive our workflows are, it doesn't matter if we have the greatest sales people in the world. If there is no demand for what we as an industry produce, business will be bad and we will lose establishments.

After all, this was the force that dominated the industry for the 20 years pre-pandemic, whittling down the industry to a third the size it was at the turn of the millennium. The good news is that, over the past couple of years, demand for print has been on the rise—and that remains true in the Age of COVID. We just have to be especially aware of what *kinds* of print are in demand, which we hope we have identified sufficiently.

### Industry Shipments Forecast

The limits of forecasting have never been made more plain. We always caution in these reports that any forecast can only ever predict the past, as it extrapolates existing data, although different forecast models do the extrapolating in different ways. Back in December 2019 when we did an initial forecast of 2020, neither the human analysts or forecasting software could have foreseen the pandemic. Granted, these sorts of cataclysmic events don't happen often (mercifully), but it's not unusual for

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<sup>44</sup>The creative community has launched various lawsuits, as one of the ways AI generates images is by drawing on imagery online that has already been created—and which may be copyrighted. We sympathize, but fighting it at this stage may be a bit like tilting at windmills, given how prevalent it has become already. See [https://stablediffusionlitigation.com/?utm\\_campaign=mb&utm\\_medium=newsletter&utm\\_source=morning\\_brew](https://stablediffusionlitigation.com/?utm_campaign=mb&utm_medium=newsletter&utm_source=morning_brew).

more minor events to occur which can play havoc with forecasting attempts. As a result, our forecast below is a general roadmap based on existing trends, so be forewarned that it can go awry at any moment.

If you are familiar with our past forecast reports, you know we use three basic forecasting models to analyze time series—namely, printing shipments:

- Exponential Smoothing
- Curve
- Box Jenkins

We also average the three forecasts to see if the “hive mind” of the forecasting software exceeds the sum of its parts, and it doesn’t really.

An obvious question is, “Well, if you have been doing these forecasts for so long, which of those models has been the most accurate?” Ah, if it were only that simple! If we look at historical shipments data and compare what ultimately came to pass with what the forecasts predicted, none has hit the mark with any consistency. Often, there were major changes in one particular year to which the forecasting model attached too much importance and which was not duplicated. Once a forecast model gets hold of an idea, it has a hard time letting go of it—but then a lot of humans do that, too.

This time around, Curve looks to be the most accurate for 2023, with the others being a bit too bullish. (They were predicting that the future would be more like 2022.) Still, Curve (and Exponential Smoothing) are way too bearish on the next decade.

Our own WTT forecasting model is more judgment-based, adding a human<sup>45</sup> perspective based on what we know about the industry, technology, and culture as opposed to what the “robotic” models know just from looking at past data and assuming that the past will repeat itself more or less aggressively.

Based on shipments data for the year, we are forecasting that 2023 will come in around \$80.6 billion. Next year will get a bump as business picks up again, plus election year material. Take anything beyond that with a grain of salt, but based on the way things have been going, here is how we think this will shake out. But as we know all too well, things can change at a moment’s notice.

**NAICS 323 Forecast Value of Shipments, 2023–2033  
(2023 \$US million)**

	Exponential Smoothing	Curve	Box Jenkins	Average	WTT Forecast
2023	\$88,035	\$79,618	\$88,076	\$85,243	\$80,640
2024	\$83,488	\$75,770	\$85,011	\$81,423	\$82,100
2025	\$78,942	\$71,922	\$83,583	\$78,149	\$81,300
2026	\$74,396	\$68,074	\$82,620	\$75,030	\$80,200
2027	\$69,849	\$64,227	\$81,816	\$71,964	\$79,600
2028	\$65,303	\$60,379	\$81,147	\$68,943	\$81,200
2029	\$60,757	\$56,531	\$80,588	\$65,959	\$79,500
2030	\$56,211	\$52,683	\$80,123	\$63,005	\$77,100
2031	\$51,664	\$48,835	\$79,734	\$60,078	\$76,500
2032	\$47,118	\$44,988	\$79,411	\$57,172	\$78,600
2033	\$42,572	\$41,140	\$79,141	\$54,284	\$76,100

<sup>45</sup> Well, analyst.

Remember, though, these are aggregate numbers, and there are going to be print businesses that far outperform the average and those that under-perform it. Data are not destiny, and it is fully within our own means to change our own destinies.

### Inflation Multipliers

Finally, here is our CPI multiplier table. It's helpful to look at your own business metrics and adjust for inflation so you know whether you're *really* making any money.

### CPI Multiplier Table

Year	Multiplier
2015	1.30
2016	1.27
2017	1.24
2018	1.22
2019	1.19
2020	1.18
2021	1.10
2022	1.03
2023	1.00

### The Last Word

Heck of a decade, the 2020s, so far, right? As I write this, virus concerns have largely become non-existent (although it is still out there!) and the “supply chain issues” have almost entirely resolved themselves. Consumables pricing and availability have also largely abated as challenges, although paper prices remain high. We had expected 2023 to be a slower year than 2022, and it was, but it wasn't terrible, and—fingers crossed—2024 should be a better one than 2023.

In the meantime, as always, WhatTheyThink looks forward to continuing to provide cutting-edge research, analysis, and commentary on these dynamic markets.

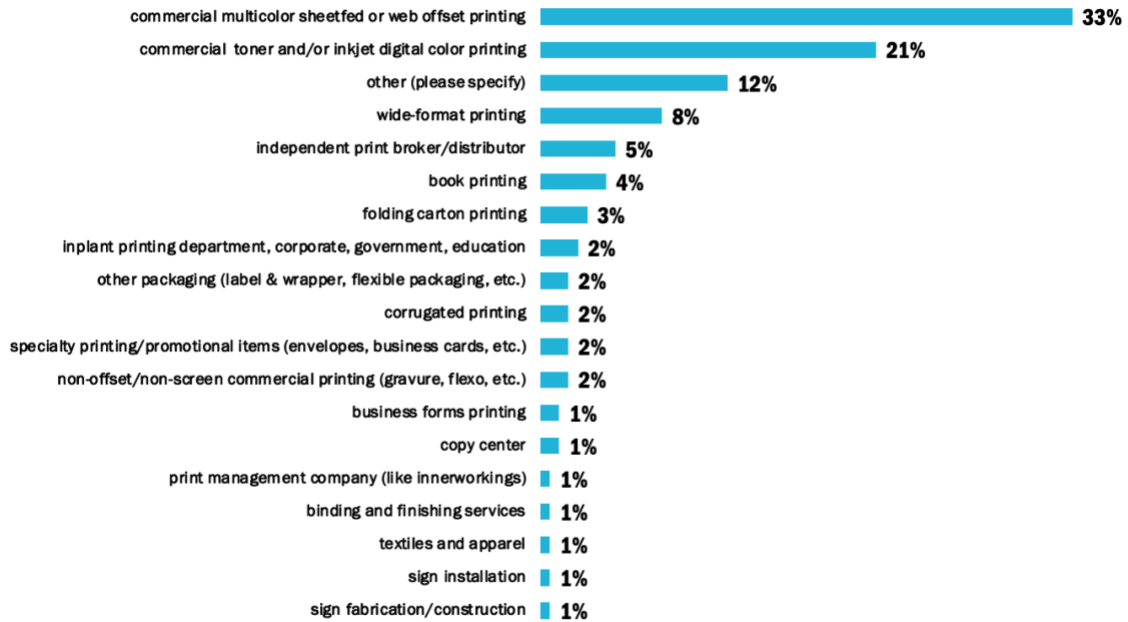
## APPENDIX A. DEMOGRAPHICS

This section provides a profile of the businesses that responded to our survey.

### Primary Business

One-third (33%) of our survey respondents describe their *primary* business as sheetfed or web offset printing, while 21% describe it as toner or inkjet digital printing.

### What Is the Primary Business at This Location?



## WhatTheyTh!nk

N=171

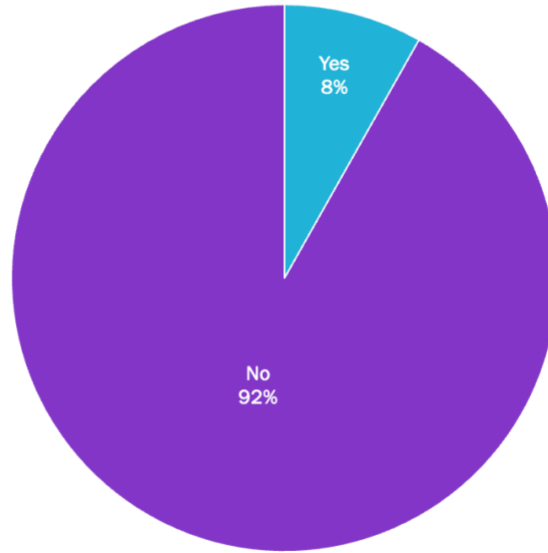
	1-9 employees	10-19 employees	20-49 employees	50+ employees
commercial multicolor sheetfed or web offset printing	14%	30%	44%	42%
commercial toner and/or inkjet digital color printing	33%	26%	16%	13%
book printing	0%	0%	7%	7%
screen printing	0%	0%	0%	0%
non-offset/non-screen commercial printing (gravure, letterpress, flexo, etc.)	0%	0%	5%	2%
specialty printing and promotional items (envelopes, business cards, stationery, greeting cards, novelties, etc.)	2%	4%	2%	0%
wide-format printing	9%	9%	5%	8%
sign fabrication/construction	0%	4%	0%	0%
sign installation	0%	0%	2%	0%

	1-9 employees	10-19 employees	20-49 employees	50+ employees
textiles and apparel	0%	4%	0%	0%
prepress services	0%	0%	0%	0%
binding and finishing services	0%	0%	0%	2%
copy center	5%	0%	0%	0%
inplant printing department, corporate, government, education, or non-profit	5%	4%	2%	0%
newspaper publisher/printer, daily and non-daily newspapers	0%	0%	0%	0%
business forms/systems dealer	0%	0%	0%	0%
business forms printing	2%	0%	2%	0%
corrugated printing	0%	0%	0%	5%
folding carton printing	0%	0%	5%	3%
other packaging (label & wrapper, flexible packaging, etc.)	2%	0%	0%	3%
print management company (like innerworkings)	2%	0%	0%	0%
independent print broker/distributor	12%	4%	0%	3%
other (please specify)	14%	13%	9%	12%

### Franchise

Only 8% of survey respondents are part of a franchise, be it print or sign.

### Are You Part of a Franchise, Either Print or Sign (Like Alphagraphics, FASTSIGNS)



## WhatTheyTh!nk

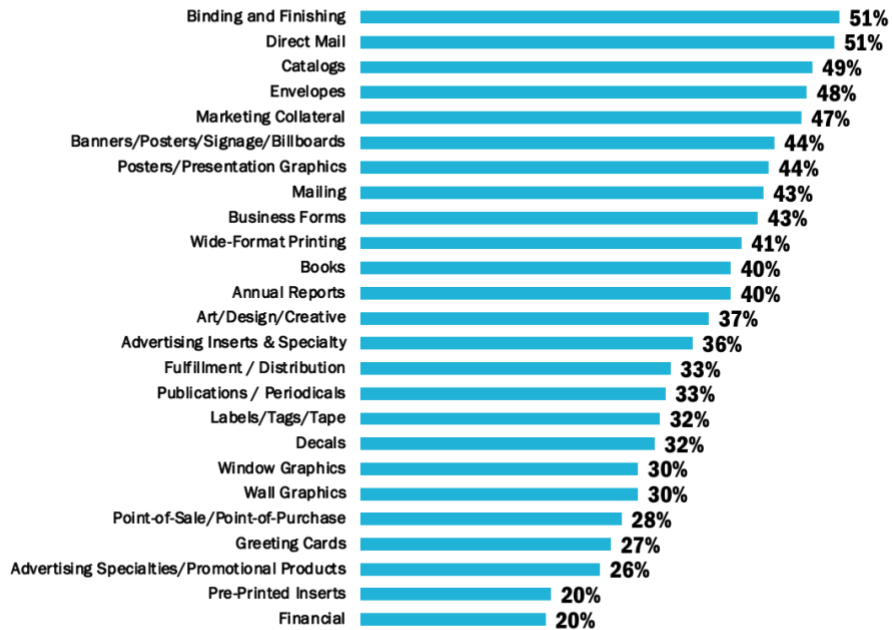
N=171

	1-9 employees	10-19 employees	20-49 employees	50+ employees
Yes	7%	22%	7%	5%
No	93%	78%	93%	95%

## Products

The chart below shows the top products produced by survey respondents.

### What Kinds of Products Are Printed at This Location?



## WhatTheyTh!nk

N=171

Other items produced by fewer than 20% of respondents include:

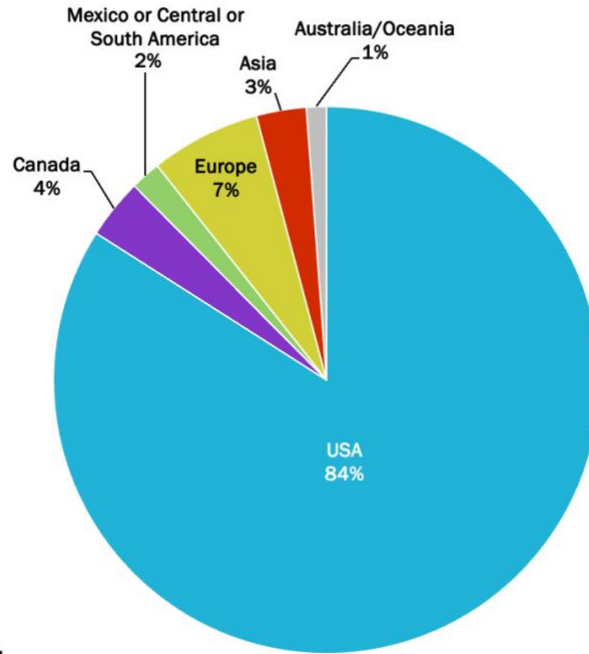
- Marketing Services/Marketing Automation: 17%
- Back-Lit Signs: 16%
- Folding Cartons: 16%
- Trade Show/Museum Displays: 16%
- Vehicle Wraps/Graphics: 16%
- Pole Signs: 15%
- Architectural Graphics: 14%
- Data Management: 14%
- Apparel: 12%
- Fleet Graphics/Transit Graphics: 11%
- Decorative Wallpaper/Laminates: 11%
- Dimensional Signage: 9%
- Fine Art: 9%

- Sign Installation: 9%
- Other (please specify): 9%
- Digital Displays: 9%
- Corrugated Containers: 8%
- Environmental Graphics: 8%
- Engineering Drawings: 8%
- Flexible Packaging: 8%
- Bags: 7%
- Additive/Subtractive: 6%
- Experiential Graphics: 6%
- Routed/Carved Signs: 6%
- In-Plant: 5%
- Screen Printing - Garments: 4%
- Screen Printing - Signage: 4%
- Transaction/Transpromo: 4%
- Blankets/Towels: 3%
- Memorials/Bronze/Plaques: 3%
- Home Decor: 3%
- Functional Coatings: 2%
- 3D and Asymmetrical Parts: 2%
- Containers/Cylindrical Objects: 2%
- Awnings: 1%
- Instruments/Dials/Overlays: 1%
- Patches/Appliques: 1%
- Printed Electronics: 1%
- Specialty Glass/Metal/Ceramic/Composite: 1%

## Location

The majority of our survey respondents are located in the US, with 7% in Europe, 4% in Canada, and 1–3% in other regions.

### Where Is This Business Located?



## WhatTheyTh!nk

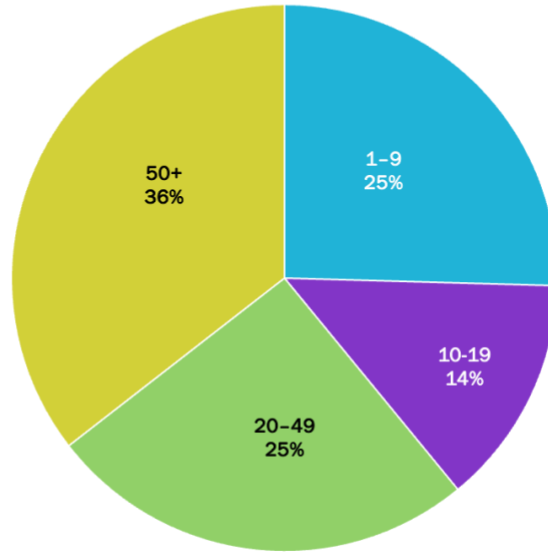
N=169

	1-9 employees	10-19 employees	20-49 employees	50+ employees
USA	84%	78%	88%	83%
Canada	7%	4%	5%	0%
Mexico or Central or South America	0%	0%	2%	3%
Europe	9%	13%	5%	3%
Asia	0%	0%	0%	8%
Africa	0%	0%	0%	0%
Australia/Oceania	0%	4%	0%	2%

## Employees

One-fourth (25%) of survey respondents are small businesses (1–9 employees), 39% are mid-size businesses (10–49 employees), and 36% are large businesses (50+ employees).

### How Many Employees Are at This Specific Location?



**WhatTheyTh!nk**

N=169

## APPENDIX B. METHODOLOGY AND QUESTIONNAIRE

The number of respondents to the Fall 2022 Business Outlook Survey was 171 WhatTheyThink printing executives. Respondents were gathered from WhatTheyThink’s commercial printing subscribers, recruited through social media (Twitter, LinkedIn), and special appeals through the WTT newsletter.

### Questionnaire

#### WhatTheyThink Annual Business Outlook Survey— Fall 2023

Subject line: WhatTheyThink’s Annual Business Outlook—Your Professional Opinion Is Requested

2022 was the year that the printing industry was finally “back in the black” after the challenges of the pandemic era, and 2023 saw business return more or less to normal. Or did it? This is what we need to find out as we prepare our “Printing Outlook 2024” report. As a result, WhatTheyThink is conducting its annual survey of printing executives about how their business fared in 2023 and what their outlook and plans for 2024 and beyond are. How did you do this year? What is your outlook for next year?

This short survey will only take 8-10 minutes to complete.

To thank you for your assistance we will send you the executive summary of this project and you will be entered to win one of 3 premium memberships to WhatTheyThink.

Thank you for your consideration and your help!

1. What is the primary business at this location? (Choose only the one that is the highest portion of 2023 sales.)

- commercial multicolor sheetfed or web offset printing
- commercial toner and/or inkjet digital color printing
- book printing
- screen printing
- non-offset/non-screen commercial printing (gravure, letterpress, flexo, etc.)
- specialty printing and promotional items (envelopes, business cards, stationery, greeting cards, novelties, etc.)
- wide-format printing
- sign fabrication/construction
- sign installation
- textiles and apparel
- prepress services
- binding and finishing services
- copy center
- inplant printing department, corporate, government, education, or non-profit
- newspaper publisher/printer, daily and non-daily newspapers
- business forms/systems dealer
- business forms printing
- corrugated printing
- folding carton printing
- other packaging (label & wrapper, flexible packaging, etc.)
- print management company (like innerworkings)
- independent print broker/distributor
- other, please specify \_\_\_\_\_

2. Are you part of a franchise, either print or sign (like Alphagraphics, FASTSIGNS)?

yes  
no  
don't know

3. What kinds of products are printed at this location? (please click all that apply)

3D and Asymmetrical Parts  
Additive/Subtractive  
Advertising Inserts & Specialty  
Advertising Specialties/Promotional Products  
Annual Reports  
Apparel  
Architectural Graphics  
Art/Design/Creative  
Awnings  
Back-Lit Signs  
Bags  
Banners/Posters/Signage/Billboards  
Binding and Finishing  
Blankets/Towels  
Books  
Business Forms  
Catalogs  
Containers/Cylindrical Objects  
Corrugated Containers  
Data Management  
Decorative Wallpaper/Laminates  
Digital Displays  
Dimensional Signage  
Direct Mail  
Engineering Drawings  
Envelopes  
Environmental Graphics  
Experiential Graphics  
Financial  
Fine Art  
Fleet Graphics/Transit Graphics  
Flexible Packaging  
Fulfillment / Distribution  
Functional Coatings  
Greeting Cards  
In-Plant  
Instruments/Dials/Overlays  
Decals  
Labels/Tags/Tape  
Mailing  
Marketing Collateral  
Marketing Services/Marketing Automation  
Memorials/Bronze/Plaques  
Neon  
Folding Cartons  
Patches/Appliques  
Point-of-Sale/Point-of-Purchase

Pole Signs  
Posters/Presentation Graphics  
Pre-Printed Inserts  
Printed Electronics  
Publications / Periodicals  
Routed/Carved Signs  
Screen Printing - Garments  
Screen Printing - Signage  
Sign Installation  
Specialty Glass/Metal/Ceramic/Composite  
Home Decor  
Trade Show/Museum Displays  
Transaction/Transpromo  
Vehicle Wraps/Graphics  
Wall Graphics  
Wide-Format Printing  
Window Graphics  
Other, please specify \_\_\_\_\_

4. Where is this business located?

USA  
Canada  
Mexico or Central or South America  
Europe  
Asia  
Africa  
Australia/Oceania

5. How many employees are at this specific location?

1-9  
10-19  
20-49  
50+

6. In terms of your 2023 revenues at this location only, how did they compare to 2022?

increased more than 10%  
increased between 6% and 10%  
increased between 1% and 5%  
stayed about the same  
decreased between 1% and 5%  
decreased between 6% and 10%  
decreased more than 10%

7. How do you expect your 2024 revenues at this location to compare to 2023?

increase more than 10%  
increase between 6% and 10%  
increase between 1% and 5%  
stay about the same  
decrease between 1% and 5%  
decrease between 6% and 10%  
decrease more than 10%

8. In terms of your 2023 jobs/orders at this location only, how did they compare to 2022?

- increased more than 10%
- increased between 6% and 10%
- increased between 1% and 5%
- stayed about the same
- decreased between 1% and 5%
- decreased between 6% and 10%
- decreased more than 10%

9. How do you expect your 2024 jobs/orders at this location to compare to 2023?

- increase more than 10%
- increase between 6% and 10%
- increase between 1% and 5%
- stay about the same
- decrease between 1% and 5%
- decrease between 6% and 10%
- decrease more than 10%

10. In terms of your 2023 profitability, how did it compare to 2022?

- increased more than 10%
- increased between 6% and 10%
- increased between 1% and 5%
- stayed about the same
- decreased between 1% and 5%
- decreased between 6% and 10%
- decreased more than 10%

11. How do you expect your 2024 profitability to compare to 2023?

- increase more than 10%
- increase between 6% and 10%
- increase between 1% and 5%
- stay about the same
- decrease between 1% and 5%
- decrease between 6% and 10%
- decrease more than 10%

12. In the next 12 months, which of the following will be your biggest business challenges? (please click all that apply)

- increasing plant productivity
- managing workflow automation
- competition from other print providers
- diversifying print product/application offerings
- capabilities of sales personnel
- capabilities of production personnel
- understanding the needs of today's communications buyers
- availability of consumables and supplies
- consumables and supplies prices
- national economic conditions
- local economic conditions
- financing costs of our equipment

finding capital for investments  
 need for employee training  
 finding qualified sales personnel  
 finding qualified production personnel  
 increasing employee benefit costs  
 profitably handling shorter runs  
 deciding whether to keep or discard our offset equipment  
 regaining business lost due to COVID  
 keeping my employees safe from COVID  
 loss of print business to digital media  
 pricing  
 job tracking  
 print MIS implementation  
 migrating production to the cloud  
 migrating business functions to the cloud  
 migrating customer service and sales to the cloud  
 training employees to use cloud applications  
 keeping up with technological changes  
 understanding/implementing artificial intelligence (AI)  
 making our facility/business more environmentally sustainable  
 owner/management retirement  
 retirement of key production personnel  
 selling our business  
 finding business(es) to acquire  
 adding/updating web-to-print/online storefront  
 getting web-to-print to work on smartphones and other mobile devices  
 adding wide-format equipment/services  
 adding packaging printing equipment/services  
 adding 3D printing equipment/services  
 adding interactive print elements to print products (QR codes, augmented reality [AR])  
 transitioning jobs from offset to high-speed digital printing equipment  
 adding non-print media capabilities (web design, app development, social media management, etc.)  
 competing against digital media agencies  
 other, please specify \_\_\_\_\_

13. In the next 12 months, which of the following represent your best new business opportunities?  
 (please click all that apply)

improving economic conditions  
 customers outsourcing more work to us  
 hiring new salespeople  
 increasing sales through print brokers  
 partnering with other print providers  
 diversifying print product/application offerings  
 offering electronic/non-print services for customers (web design, app development, social media management, etc.)  
 offering interactive print technologies to customers (like QR codes, augmented reality)  
 helping customers integrate print and non-print marketing campaigns  
 using marketing automation for our business (like HubSpot, Eloqua, Marketo)  
 selling marketing automation services to our customers  
 adding additional offset printing equipment  
 adding toner-based digital printing equipment (like HP Indigo, Xerox iGen)  
 adding high-speed production inkjet printing equipment (like HP PageWide, Canon ProStream)  
 replacing toner-based digital equipment with production inkjet  
 customized, personalized, or variable-data printing jobs

disposing of offset equipment to concentrate on digital printing  
 broadening bindery/finishing equipment/services  
 adding “digital enhancement” finishing technologies (like Scodix, Highcon, MGI)  
 adding wide-format printing capabilities  
 adding textile/fabric printing for soft signage  
 adding textile/fabric printing for apparel  
 adding textile/fabric printing for décor/furnishings  
 adding packaging printing capabilities  
 adding digital label/wrapper printing capabilities  
 adding specialty or industrial printing capabilities  
 adding vehicle graphics/wrapping capabilities  
 adding traditional signage fabrication/construction capabilities  
 adding dynamic digital signage (DDS) capabilities  
 adding 3D printing capabilities  
 adding interactive print elements to print products (QR codes, augmented reality [AR])  
 sign installation  
 broadening fulfillment, shipping, mailing capabilities  
 automating production  
 adding web-to-print/online storefront  
 print MIS implementation  
 implementing artificial intelligence (AI)  
 getting more customers using smartphones and other mobile devices  
 migrating production to the cloud  
 migrating business functions to the cloud  
 migrating customer service and sales to the cloud  
 training employees to use cloud applications  
 acquiring another company  
 selling our company  
 becoming part of a print or sign franchise (like Alphagraphics, FASTSIGNS)  
 helping clients get their websites to work on mobile devices  
 video production services  
 other, please specify \_\_\_\_\_

14. Which of the following investment items have you budgeted for and plan to acquire in the next 12 months? (please click all that apply)

additional space/new location  
 color quality control (measurement equipment, software, hardware)  
 offset prepress equipment (like CTP)  
 finishing/bindery equipment for offset/analog production  
 finishing/bindery equipment for digital production  
 cutting table for wide-format finishing  
 other finishing equipment for wide-format  
 laser cutting/etching equipment  
 mailing software/equipment  
 toner-based color digital press (like HP Indigo, Xerox iGen)  
 high-speed production inkjet printing equipment—rollfed (like HP PageWide, Canon ProStream)  
 high-speed production inkjet printing equipment—cutsheet-B1 size (like Landa Nanography S10, Komori Impremia)  
 high-speed production inkjet printing equipment—cutsheet-B2 size (like Fujifilm JPress, Konica Minolta AccurioJet)  
 high-speed production inkjet printing equipment—cutsheet-B3 size (like Canon varioPRINT, Xerox Baltoro)  
 high-speed production inkjet printing equipment for packaging  
 high-speed production inkjet printing equipment for industrial printing

- high-speed production inkjet printing equipment—other, please specify \_\_\_\_\_
- analog/flexo label-printing equipment
- digital label printing equipment
- sheetfed offset press
- web offset press
- rebuilding our web offset press
- COVID safety materials/equipment (like dividers, distancing graphics, PPE)
- wide-format color printer (24 in.+)-solvent/eco-solvent (like Epson, Roland)
- wide-format color printer (24 in.+)-latex rollfed or flatbed (like HP Latex, Epson Resin)
- wide-format color printer (24 in.+)-flatbed UV (like EFI VUTEk, Canon Arizona)
- CNC routers and/or other signmaking equipment
- transfer-based dye-sublimation printer (like Epson, Roland, Mimaki)
- direct-to-textile dye sublimation printer (like Kornit)
- direct-to-garment printer (like Ricoh/Anajet, Epson)
- direct-to-film printer (like Mimaki, Epson)
- packaging press/printer-corrugated
- packaging press/printer-folding carton
- packaging press/printer-flexible packaging
- 3D printer
- prepress RIP for our wide-format printers
- prepress RIP for other devices
- Management Information System (MIS)
- Customer Relations Management (CRM) system
- workflow automation software
- Web-to-print software
- business intelligence software
- marketing automation software
- we have no planned investments
- other, please specify \_\_\_\_\_

15. Have you added, or do you plan to add, any of the following capabilities? (click all that apply)

	Added more than 2 years ago	Added in past 18-24 months	Plan to add in next 18-24 months	No plans to add	Don't produce in-house but outsource/plan to outsource	Don't know
high-speed production inkjet (like HP PageWide, Canon Océ ProStream)						
wide-format printing (like signs, displays, banners)						
textile/fabric printing for soft signage						
textile/fabric printing for garment printing/decorating						
direct-to-garment printing						

interior decor printing (wall coverings, pillows, etc.)						
specialty or industrial printing (like coffee mugs, golf balls, smartphone cases)						
corrugated packaging printing						
folding carton printing/convertng						
flexible packaging printing/convertng						
3D printing						
printed electronics						

16. Are you considering hiring/adding staff in the next 12 months?

- yes
- no
- don't know

17. If yes, for what positions are you looking to hire? (please check all that apply)

- executive management
- inside sales representative
- outside sales representative
- marketing and market communications
- prepress
- production management
- press operator (offset or digital)
- postpress/bindery/finishing
- color management expert
- IT management
- IT/software programming
- graphic designer (for print)
- web design/development
- mobile app development
- other, please specify \_\_\_\_\_

18. If yes, how are you searching for staff? (please check all that apply)

- general online recruitment sites (like Indeed, Monster.com)
- online classified advertising sites (like Craigslist)
- advertising in local print and/or online newspapers
- general job recruiters
- outreach to higher-ed graphic arts programs (like CalPoly, RIT)
- outreach to printing industry associations
- internship program
- word of mouth
- incentives for employee referrals
- other, please specify \_\_\_\_\_

19. Have you implemented “workflow automation” in your facility(ies)?

- Yes
- No
- Don't know

20. If yes, what is the nature of that automation? (please click all that apply)

- Web-to-print/online storefront
- Software-based estimating
- Software-based automatic processing of prepress files
- Hardware-based robotics (like mechanical arms)
- Independent robots/cobots
- Other, please specify \_\_\_\_\_

21. What are the challenges your business faces in implementing “automation”?

\_\_\_\_\_

22. Thinking about your potential use of “artificial intelligence” (AI), large language models, and/or machine learning, what is your business’ approach to AI and AI-related technologies for the following functions?

	Use now in our shop	Will start using in 2024 or 2025	Considering use after 2025	Won't ever use	Don't know
Service and training					
Predictive maintenance					
Production analytics					
Job intake/on-boarding					
Scheduling and planning					
Estimating					
Graphic design/layout/creative services					
Prepress automation					
MIS/ERP implementation					
Other (please specify)					

23. Please use this space to share any other comments about how your business fared in 2023, and how you expect business to be in 2024.

\_\_\_\_\_

## APPENDIX C. SURVIVOR BIAS

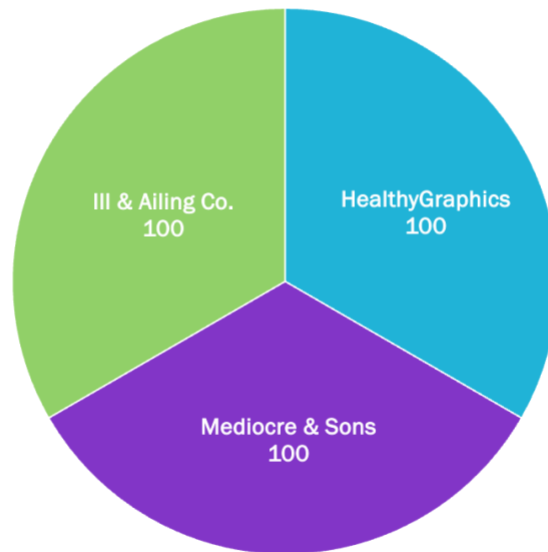
In our survey results, what we refer to as “survivor bias” plays a very important role, as it has in past surveys, and affects the interpretation of survey data. When an industry is growing, this type of bias is not an important statistical issue. But, as you know, the industry has *not* been growing—quite the opposite—so we need to bear survivor bias in mind, because it stems from the fact that really unhealthy print businesses have exited the industry (and thus have not taken our survey), and the ones that survived are naturally healthier than the ones who went—or are going—out of business. After all, businesses that are *really* ailing tend to disregard survey participation requests, since they’re too busy trying to stay in business to bother answering a questionnaire.

Survivor bias is nothing unusual, nor is it unique to the printing industry; it’s almost always what happens in markets.<sup>46</sup> But how they perceive the remaining print landscape may not be a true reflection of the overall market.

Here’s what we mean.

Say you have a given print market with three printers. One is doing really well (HealthyGraphics), one is doing OK but not great (“Mediocre & Sons Printing”), and one is doing very badly (“Ill & Ailing Co.”). Assume at the outset that in their region, the overall market for print is 300 print buyers, at this point in time, they each serve 100 customers:

**The Initial Market—My Three Printers  
Market=300 Customers**



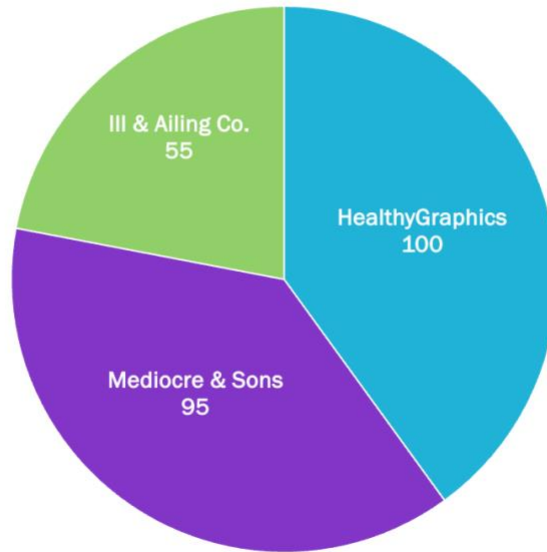
## WhatTheyTh!nk

These three printers plug away merrily for a period of time. Now, say there is some sort of upheaval—50 of those customers are gone. Some may have moved away, some may have had their marketing budgets cut and thus stopped printing things, relying instead on digital or social media, and some may have gone out of business or been acquired. In a word, the market for print shrinks. When the smoke

<sup>46</sup> It’s also common in medical and health research, where the term “survivor” is used a bit more literally.

clears, there are only 250 customers spread among these three shops. The healthy printer keeps all its original customers, the mediocre printer loses a little bit, and the sick printer loses the most:

### Upheaval! The Market Changes Market=250 Customers



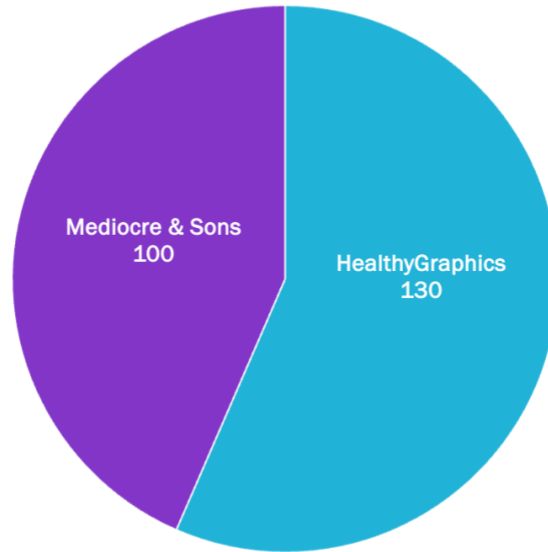
## WhatTheyTh!nk

How does each of these printers describe the prevailing economy?

- HealthyGraphics: “Business isn’t growing strongly, but we’re holding steady.” (What they say on our survey: “Business conditions have stayed about the same.”)
- Mediocre & Sons: “Business is tough, but we’ve only lost 5% of our business.” (What they say on our survey: “Business decreased up to 5%.”)
- Ill & Ailing Co.: “We’re in a recession. Things are terrible. We have to go out and sell harder.” (What they say on our survey: “Business decreased more than 10%.”)

Things go on like that for a bit and ultimately Harold Ill and Dennis Ailing of Ill & Ailing decide to pack it in, and the company exits the market (so it goes). As a result, both the healthy printer and the mediocre printer each pick up some of the volume from the I&A’s customers. However, at the same time, another 20 of print customers have themselves left the market, or at least the print market:

**And Then There Were Two...  
The Printing Landscape Changes  
Market=230 customers**



**WhatTheyTh!nk**

How do the printers now describe the prevailing market?

- HealthyGraphics: “Business is great! We’re up 30%.” (What they say on our survey: “Business increased more than 10%.”)
- Mediocre & Sons: “Hey, business is pretty good! We were down 10%, now we’re up *more than 10%* from where we were since we went from 90 to 100 accounts. This is because we’re smart. We’re terrific executives. Next year will be even better.” (What they say on our survey: “Business increased more than 10%.”)
- Ill & Ailing: “I played a round of golf this morning, and Dennis is going sailing later today. Retirement is great!” (What they say on our survey: Nothing.)

When things are good, you’re a genius. When things are bad, it’s the economy. Right? However, neither of these things was the case in this example. Because look at what happened to the overall market for print:

## The Effects of Survivor Bias on Market Perception

	Time Period 1	Time Period 2		Time Period 3	
Market size/change (number of accounts)	300	250	-17%	230	-8%
Healthy printer	100	100	0%	130	+30%
Mediocre printer	100	95	-5%	100	+11%
Sick printer	100	55	-45%	-	-
What the market survey says	"All printers are doing the same"	"We did a survey and only one out of three printers said business was holding steady."		"Printers are doing great; survey respondents said that business is up 10%+!"	
What really happened	Flat market	Market shrank by -17%		Market shrank by -8%	

Even when aggregate business conditions were up, the print market still declined. So the survivor bias phenomenon leads to a false assessment of aggregate business conditions that ends up being reflected in the way participants in industry surveys answer questions about business performance. When we ask whether business increased in the past year, both the healthy printer and the mediocre printer would say, "yes," skewing the results in a positive direction because the sick printer is lolling in the Florida sun and isn't around any longer to select any of the "business is declining" survey options. None of these respondents were lying: they were reporting about their individual business, which is what they're supposed to do.

Now, you might say, "Well so what? If the industry is left with healthy printers, isn't that a good thing? Isn't that what usually happens in a dynamic market?" If it were the case that the *only* variable in this example was the health of the printers, then yes, it would be a good thing. But that's *not* the only variable. The more important variable is the number of print customers—the overall market for print. In our theoretical example, that kept declining, an effect that the relative health of the remaining printers masked. If that keeps declining, then the mediocre printer will become the sick printer, and the healthy printer a mediocre printer. Lather, rinse, repeat, and the next time there is a survey, the shops that are left are still in the roughly the same position as our example and will say the same basic things. It's just that the numbers will be smaller. At some point, you may just have the healthy printer who has all the print business in the area. So he'll be doing quite well. For a while...

Now, this is not to say that survey results are useless; if they were, we wouldn't keep doing them. It's only during times of consolidation that this becomes an issue. Over the years, we've done surveys where respondents were quite frank about how bad their business conditions were, and we've seen survey results that we felt accurately did reflect an industry that was in better shape than it had been previously.

Survey data need to be looked at in the context of what we know about the market both in terms of broader statistics like changes in monthly printing shipments and other general economic data, as well as anecdotal evidence gleaned from talking with printers and printers' suppliers and vendors. Other data in the survey also help shed a light on business conditions data.

So think of this: industry-wide government data give us a "top-down" view of the marketplace. Survey data give us a "bottom-up" perspective. The job of the researcher is to reconcile the two truthful perspectives with analysis that reveals the dynamics of the industry.

There are telltale signs of survivor bias lurking in the data if you know where to look for them. It comes down to interpreting data that you know just can't be true, or at least don't tell the whole story. There is a bit of that in Section 4 of this report.

So keep this idea in mind as you read through the data in this report. You will see generally upbeat numbers for many respondents in the business conditions segment of the survey, even though

industry shipments have taken a very bad turn since Fall 2016. Surveys are for winners, it seems. Printers having trouble staying afloat have to keep paddling; they don't have time for surveys.

That's the end of our lecture. Except perhaps for this comment: if you're a printer who has been a survivor, stay vigilant. When business is great, everyone thinks they're a genius. When business is bad, you really need to be one to adapt and reposition.